The Excavating Engineer

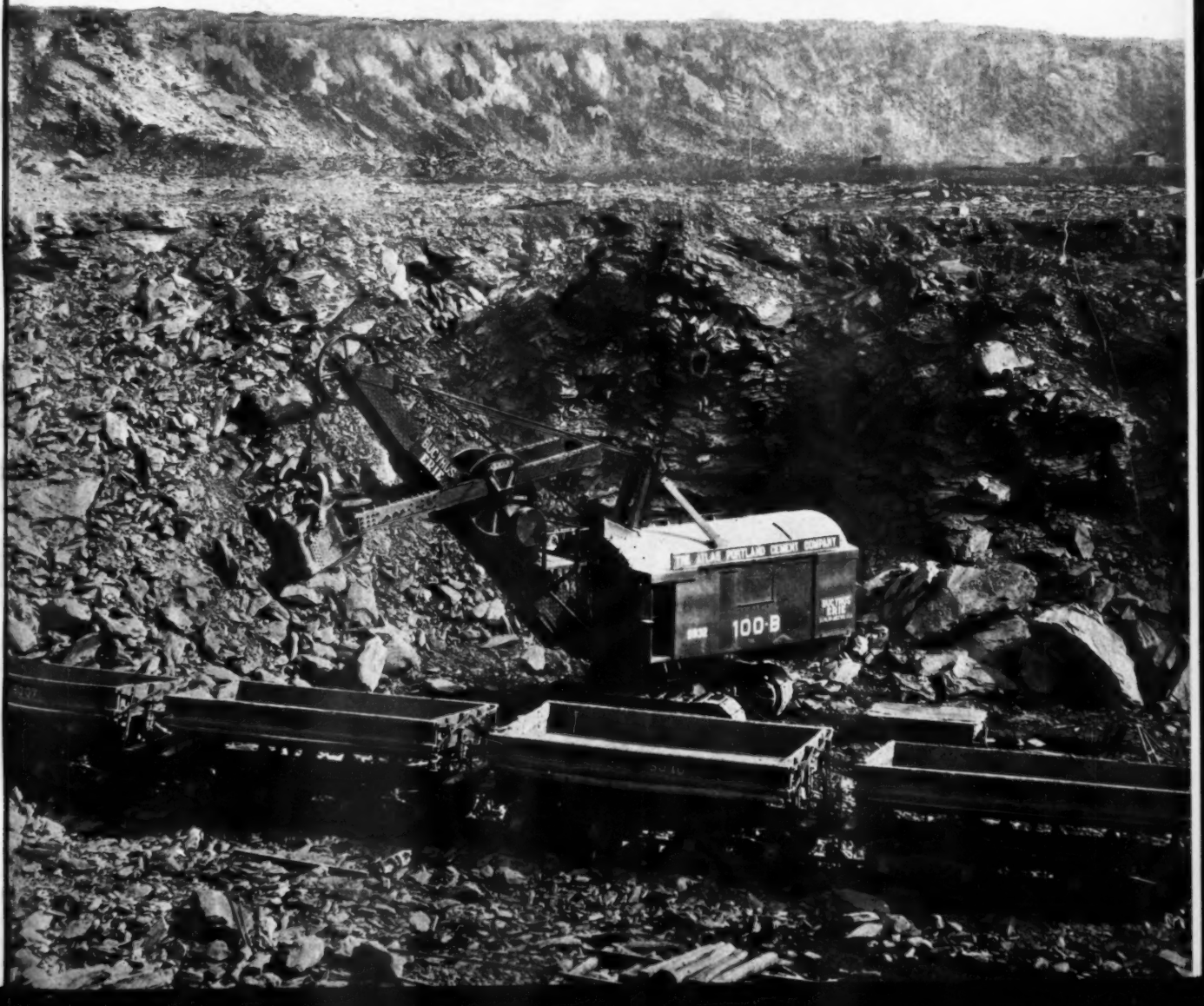
Vol. XXIII MAY 1929 No. 5

IN THIS ISSUE:

Quarry Operations at Historic Northampton Plant of Atlas Portland Cement Company.

A Race Against Time in Burma.

Front Cover Illustration: One of Three Modern 3-yard Heavy-Duty Electric Quarry and Mining Shovels Supplying Rock to the Atlas Northampton Plant.



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Adv. 741

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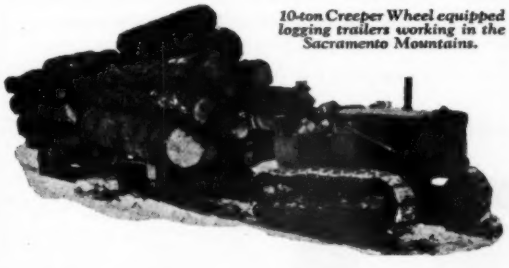

10-ton Creeper Wheel equipped logging trailers working in the Sacramento Mountains.

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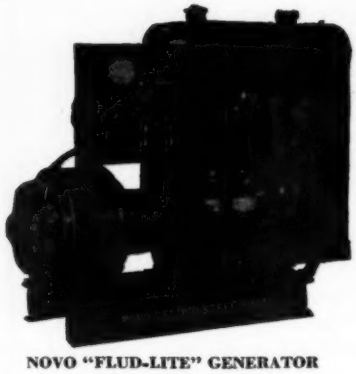
Good-bye Flicker

Good-bye Burned Out Bulbs



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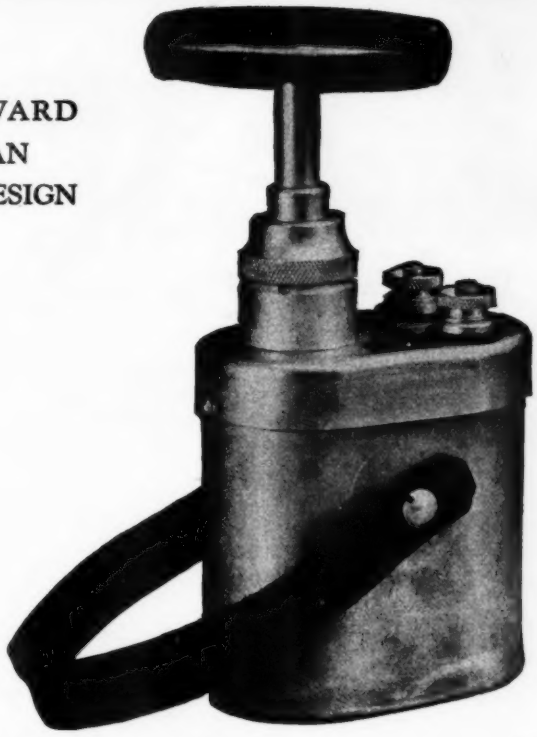
IN AMERICAN
ELECTRICAL DESIGN



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HERCULES 10-CAP BLASTING MACHINE

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2. It is of the dynamo type; therefore long and constant use entails no loss of power.
3. A six segment commutator, newly developed, assures an even, non-pulsating current.
4. Rated to fire ten electric blasting caps, connected in series, it has a power reserve of 100 per cent.
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The new Hercules 10-Cap Blasting Machine is convenient for all blasting where from one to ten shots are fired at once. For larger hook-ups, the Hercules 1 to 50 Hole Capacity Machine, an efficient push-down generator, is recommended.

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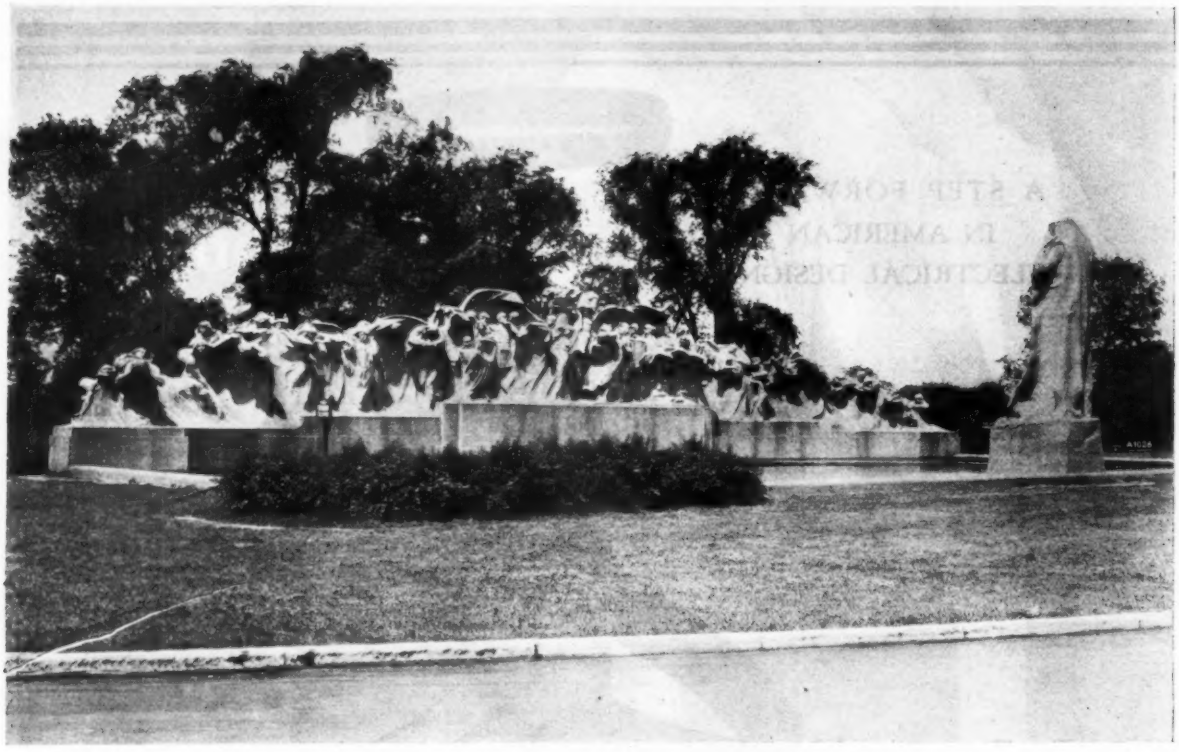


Fountain of Time, the Lorado Taft masterpiece at Chicago, Illinois, is built of Atlas Portland cement. John J. Earley, Architectural Sculptor.

From Atlas gray and white cements is built the Parthenon at Nashville, Tennessee, the only known authentic reproduction of the famous masterpiece of Grecian architecture. John J. Earley, architectural sculptor.

The EXCAVATING ENGINEER

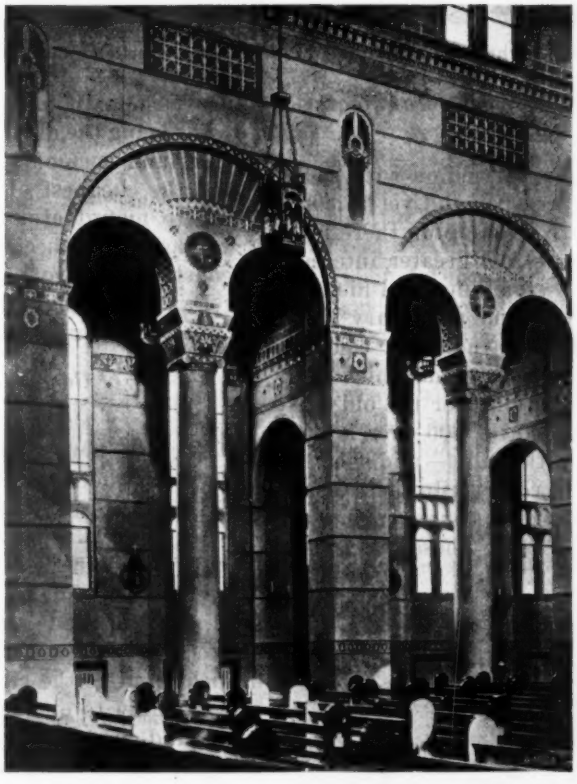
Vol. XXIII MAY 1929 No. 5

Quarry Operations at Historic Northampton Plant of Atlas Portland Cement Company

This Largest Cement Plant in the World Located at Birthplace of American Cement Industry.

THE organization of The Atlas Portland Cement Company goes back almost to the very origin of Portland cement manufacturing in the United States. With a small capital outlay, its first existence was at Coplay, in the Lehigh Valley in Pennsylvania, in the year 1888. Today its mills are capable of shipping 20,000,000 barrels a year, and its plants are geographically located so as to supply most of the best markets throughout the United States.

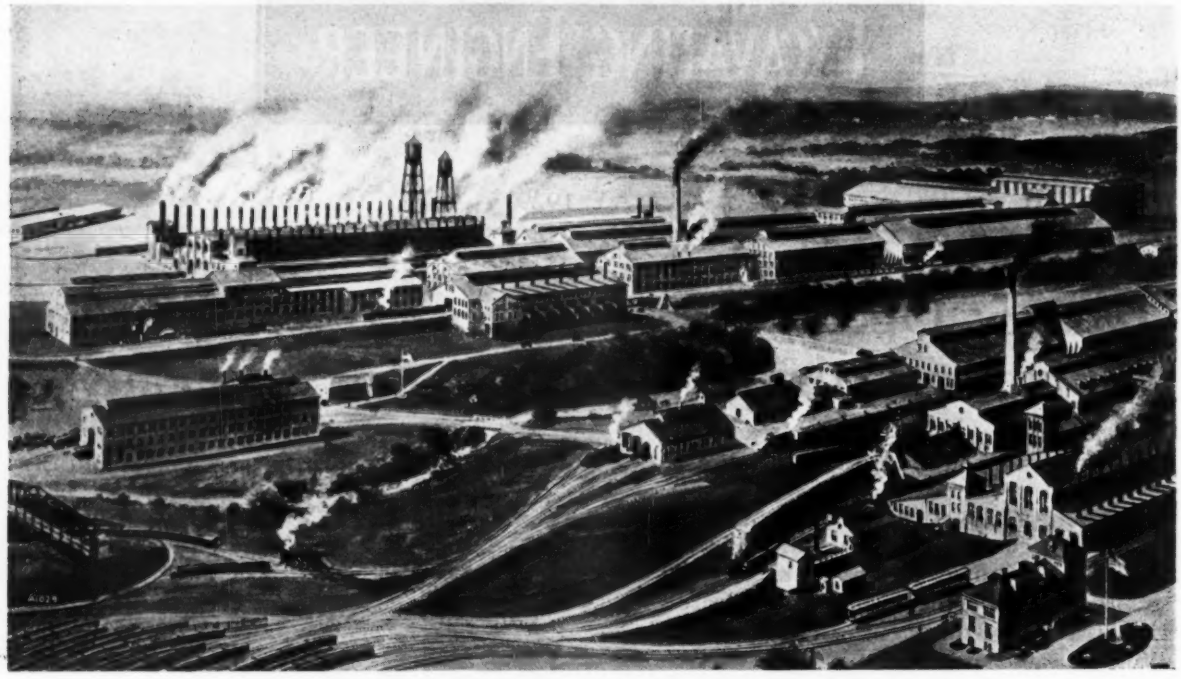
This organization operates plants at Northampton, Pennsylvania, Hudson, New York, Hannibal, Missouri, Independence, Kansas, and Leeds, Alabama. There is also now nearing completion a new Atlas plant in Waco, Texas. The Atlas plant at Northampton, Pennsylvania, enjoys the distinction of being the largest Portland Cement plant in the world. It contains 836 acres — the quarry pit alone being 80 acres in area, while the height of stone face in the original quarry from top to bottom is 115 feet. 9,000 pounds of dynamite are used in the average blasts which break down 100,000,000 pounds of cement rock — equal to 1,250 carloads.



Interior view of Church of Sacred Heart at Washington, D. C., where John J. Earley has produced all of the beauty in design with Atlas cements that was formerly possible only through use of marbles and mosaics. John J. Earley, architectural sculptor.

This broken rock is picked up by modern electric shovels, and in a few minutes a carload is completely filled. Approximately 225 carloads of broken rock must be furnished daily to keep the plant running to its full capacity. Twenty miles of Atlas-owned and Atlas-operated railroad, radiating from this quarry, carries the stone to the various mills which occupy about 213 acres.

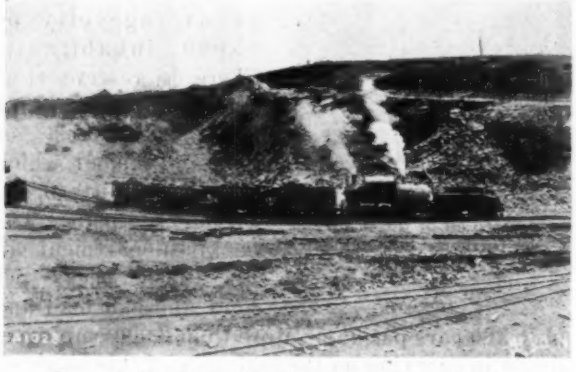
The electric generators in these mills produce sufficient current to supply light for an average city of 85,000 inhabitants. There is reserve storage capacity for 2,000,000 barrels of Portland cement, which means about 9,400 average carloads. The packing department can fill 16,000 sacks per hour and can load and ship 200 cars per day. More than 2,000 employees assist in carrying on the activities of this immense plant.



General view of the Northampton plant of the Atlas Portland Cement Company —

Two Great Improvements in Cement Manufacture Came from Northampton

Manufacturing operations carried on with such magnitude are always impressive, and yet in connection with this plant at Northampton there is a factor of greater importance and greater interest than the size of the plant — for industrial history records that from this plant came the rotary kiln, the machine that revolutionized the entire cement industry in this country — the machine which permitted an increasing production over the old stationary dome kiln of from 500 to 3000 barrels per day, according to the size of the kiln — and shortly after the development of the rotary kiln there came from the same plant the process of burning cement with powdered coal as the fuel. These two great improvements in manufacturing have been credited as being the chief factors in making the price of Portland cement so low that it is frequently called the cheapest of all products undergoing a complete manufacturing process, and so low in price that it has become available for every type of construction, from the world's greatest project, the Panama Canal, down to simple sidewalks, curbs and gutters around the home.

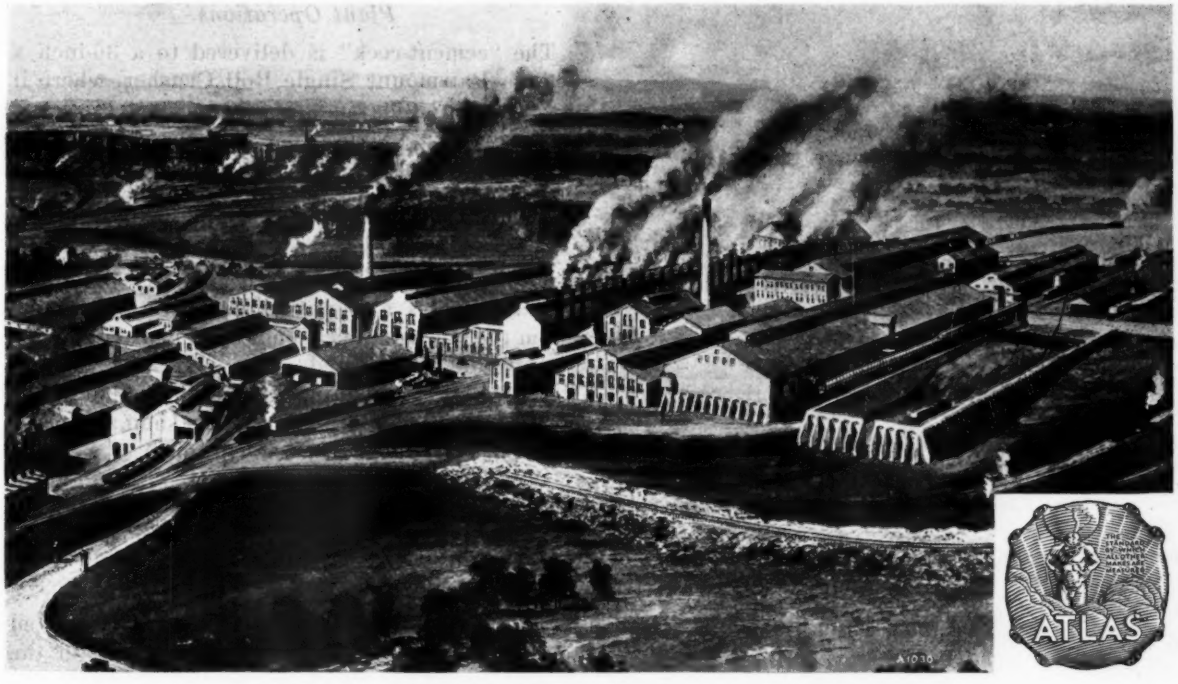


General view in the Northampton quarry showing method of hauling.

Method of Carrying On Operations at the Northampton Plant

Recently a new level has been opened up in the quarry and here the track layout consists of a standard-gauge railroad leading from the primary crusher at the mill to the quarry, a distance of approximately 4000 feet. Near the quarry the track descends at a grade of 2.25% through a cut to the level of the quarry floor, which is approximately 40 feet below the old quarry level. Here the track branches out to the right and left, one track running parallel to one side face, one parallel to the other, and one leading ahead to the pilot cut. Additional "set-out" tracks are located in convenient places for loaded and empty cars. 80-pound rails are used on the main track and 60-pound on the branches.

The quarry face of this new level is about 40 feet high. A pilot cut approximately 100 feet wide is advanced so that the two remaining sides may be removed by side slicing, thus giving two shovels the obvious advantage of a "long car spot."



The largest cement plant in the world. Note quarry in background.

Three Bucyrus-Erie 100-B Electrics Load Stone

In line with several recent important and progressive improvements the Atlas Portland Cement Company has installed at this quarry three Bucyrus-Erie 100-B electric shovels equipped with 2½-yard Missabi-Vanderhoef dippers.

The three shovels are operated generally from 10 to 11 hours per day, but this is varied to suit

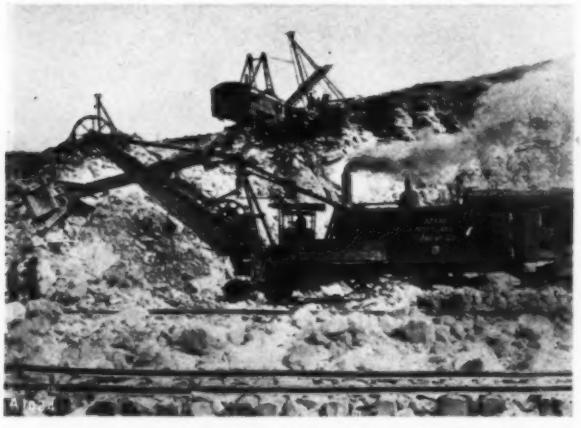
Blasting at the Northampton quarry. 9,000 pounds of dynamite in a single shot dislodges 100,000,000 pounds of rock.

conditions. The rock is loaded in 12-yard side dump cars manufactured by the Western Wheeled Scraper Company, the newer cars being of all-steel construction. The loaded cars are set out on storage tracks, after which they are made up in trains of 13 cars for delivery to the crusher. These trains having the desired apportion from each shovel, this apportion depending on the composition of the rock. Steam locomotives of saddle tank type, weighing 60,000 pounds, are used for waiting on the shovels, one to each shovel. A steam locomotive weighing 144,000 pounds, and manufactured by the American Locomotive Company, is used for taking the 13-car trips to the crusher and bringing the empties back.

Through the use of these 100-B electric shovels, quarry efficiency has been considerably increased, due to the saving of time required for "move-up," the greater loading range resulting in considerably less track work and delays for secondary blasting, and a saving of numerous other time losses previously suffered, especially during the winter.

1¼ Blast Hole Drills Drive Holes for Blasting

Drilling is done with size 14 Standard Cyclone and Clipper Well Drills, Traction Type, gasoline engine power. Size of bits used is 5¼-inch of the Gill Type. A Gill bit sharpener is used for dressing the bits. The average per hour drilled, including moving, changing tools, etc., is 5.5 feet. Holes are spaced 16 feet to 18 feet apart depending upon conditions. They are drilled 4 feet below the desired grade of the quarry floor. Fifty pounds of 60% Du Pont Quarry Gelatine in the bottom of the holes and from 100 to 225 pounds of 40% Du Pont Red Cross Extra Ammonia Dynamite is used as the occasion demands. Detonation is accomplished by means of No. 8 electric exploders fired from 440 volts A. C. power line. Broken stone per pound of explosives averages from 5.5 to



Bucyrus-Erie old-fashioned, Atlantic-type, railroad shovel formerly used at the Northampton quarry and replaced recently by modern full-revolving, Ward-Leonard control electric machines. Class-9½ dragline stripper on top of bank.

6.0 tons. Secondary drilling is done by means of "Jackhamers." 30% Du Pont Red Cross Extra is used for block-holing, and is detonated by No. 6 fused caps or electric exploders, depending on conditions.

Stripping Operations Completed Previously

Owing to the fact that this quarry has been operated many years, the new level now being worked requires no stripping whatever. The stripping of the upper quarry level was done by means of a Class-9½ Bucyrus dragline equipped with a 45-foot boom and 1½-yard dipper. The overburden of clay and loam was from 3 to 30 feet deep, but averaged approximately 9 feet. This material was loaded into 6-yard Western side dump cars, which were moved to a dump, approximately three-fourths of a mile distant, by means of single wire rope haulage.

Plant Operations

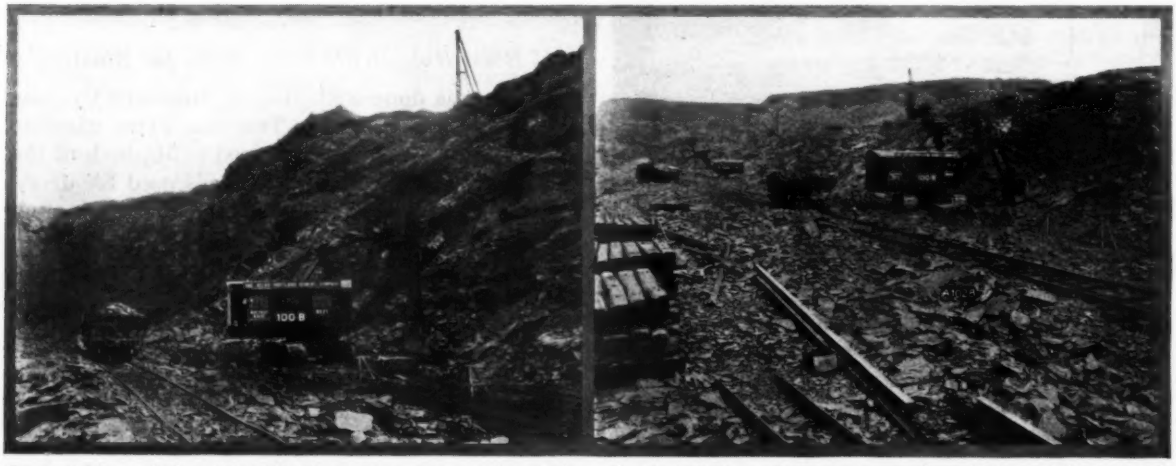
The "cement-rock" is delivered to a 36-inch x 60-inch Fairmount Single Roll Crusher, where it is reduced to a maximum of 10 inches in size and delivered by a 42-inch belt conveyor to two Pennsylvania Hammer Mills, which reduce it to 1½ inches and under. From the Pennsylvania Hammer Mills it is carried on a 42-inch belt conveyor to the storage, of 20,000 tons capacity, where it is distributed by a Robins Tripper. A small amount of limestone is also put in part of the storage. From the storage the raw material is drawn, dried and ground as required.

This plant is equipped with machine shop, boiler shop, carpenter shop, pattern shop, and brass foundry. All shops are well-equipped to perform any work necessary to keep this large plant in efficient operation.

Location of Northampton Plant and Quarry Has Historical Interest

The Northampton Quarry and Plant is located in the famous Lehigh Valley in the heart of the cement industry. Within a stone's throw is the site of the first Portland cement plant in the United States, and from the crest of the quarry can be seen the No. 1 Atlas plant, in which were developed the first rotary kilns to be used for burning Portland cement clinker.

Of unusual historical interest, there is standing on the property of The Atlas Portland Cement Company at Northampton, an original blockhouse, a small eight-cornered stone building with walls two feet thick — no windows, but containing seven small portholes and a door on the southern side. It is pronounced the oldest building in the Borough of Northampton, Pennsylvania. This miniature fort is thought to have been erected by Thomas



General view of the Atlas Northampton quarry taken before the installation of the more modern full-revolving electric shovels which have replaced the old-fashioned railroad-type machine. Note the Bucyrus-Erie Class-9½ dragline on the horizon which was used to handle the stripping. The track system facilities sorting out the various grades of rock in order to secure the proper mixture of right material for use in manufacturing Atlas cement.

Three of these Bucyrus-Erie electric 100-B heavy-duty shovels are used to supply the Atlas Northampton plant with 9,000 tons of rock daily. The three replaced four railroad-type machines and handle loading of the required tonnage easily.

Wilson, soon after his return from his home in Bethlehem, where he had fled with his family following the massacre by Indians of eleven persons at Gnaden Huetten on the Mahoning, now Weissport, November 24, 1755.

The Atlas Portland Cement Company have preserved this historical landmark by carefully overcoating it with stucco made with Portland cement, and arrangements have been made that it shall be protected and carefully preserved in the years to come.

Atlas White Portland Cement Is Made at Northampton Plant

With the ever-increasing use of Portland cement in all types of buildings, there developed a need for beauty in concrete. Architects and craftsmen generally, while quick to accept the dependability of concrete, were not always pleased with its color or texture, and did not feel that it could be adapted to certain types of architecture or concrete.

The Atlas Company pioneered in the development of a cement that would answer this need for beauty and have produced Atlas White Portland Cement, a true Portland cement, having all the desirable characteristics and qualities of gray cement, except that this Atlas White was, as its name implies, pure white in color. This immediately supplied a material which to the architect was much the same as white color is to the palette of the artist. Atlas White Portland Cement is widely used for non-staining mortar, for mortar where white joints are desired, for cast stone, terrazzo, for all decorative concrete, and is especially in heavy demand for stucco, since its pure white color will permit of securing color tones such as ivory and light buff, and because it is pure white it can be tinted with pigments to yield true values in the darker shades.

Quick Hardening Atlas Lumnite Cement Is Also Made at Northampton

Five years ago the Atlas Portland Cement Company caused to be formed the Atlas Lumnite Cement Company, which company was the first to make available for commercial use in America a hydraulic quick-hardening cement for concrete and mortar.

This cement was named Lumnite, and its outstanding property is that over night it hardens into full strength concrete — within twenty-four hours it gives greater strength than ordinary concrete possesses at twenty-eight days. It is widely used in municipalities where streets must be put into immediate service, in industrial plants where concrete must be available for use in the quickest possible time, so that plant production need not be interrupted — railroads, street railways, inter-

Old blockhouse built for protection against the Indians in about 1755.

urban lines, public utilities are now able to make emergency repairs or new construction in concrete with Lumnite and be able to put the concrete in full service within twenty-four hours.

(Continued on page 205.)

A Race Against Time in Burma

Two 1½-Yard Diesel Draglines Excavate 100,000 Cubic Yards on Myitkyo Canal in First Three Weeks of Operation.

Moving out to the canal location.

BURMA, the largest province in British India, lies to the east of the Bay of Bengal — east of India, south of China, and northwest of Siam. It has an area of about 231,000 square miles and is traversed by great mountain ranges branching off from those of northern India, and running parallel with each other southward to the sea. Between these ranges and in the plains or valleys here situated, the four great rivers of Burma — the Irrawaddy, its tributary the Kyendwen, the Sittang, and the Salwen — flow in a southerly direction to the sea, watering the rich alluvial tracts of lower Burma, and having at their mouths all the great seaports of this country — Rangoon, Bassein, Molmein, Akyab, etc.

The country as a whole is very productive, especially in the lower portion, where grow rice, sugar-cane, tobacco, cotton, indigo, etc. Burma has great mineral wealth — gold, silver, precious stones, iron, marble, lead, tin, coal, petroleum, etc. The chief precious stone is the ruby, and the famous mines of this gem belong to the crown. Sapphire, amber and jade are also obtained.

In this famous land of the far east the Myitkyo Loop of the Sittang River which is situated about 80 miles inland from Rangoon, has been silting up for many years until navigation has become seriously impeded, and the use of the Pegu Canal, with its entrance located at the Myitkyo, has been rendered increasingly difficult.

To overcome the problem it was decided to cut across a loop, diverting two other streams into the Myitkyo Loop of the Sittang River near Myitkyo itself, and so bring fresh water into the Loop to keep it open. There were also important drainage and land reclamation advantages to be secured by the cuts decided on.

From June to October, this land is flooded and work can only be done between December and the

One of the machines arriving in its packing cases on a barge at Myitkyo.

end of May. Owing to the urgency of the matter, it was essential to complete at least one of the cuts by the end of May, 1929, although the scheme and the necessary funds were only sanctioned toward the end of September, 1928.

Diesel Dragline Operation Decided On After Comparison of 14½ Cents Per Yard Hand Labor Estimate with 4 Cents Per Yard Average Diesel Dragline Cost on Sukkur Barrage Project in India

The estimated rates for hand labor for the cuts, which involve several feet of excavation under water, was 14½ cents per cubic yard, the total excavation involved being 540,000 cubic yards.

The Chief Engineer ascertained that the average costs per cubic yard, excluding interest and depreciation, on a large number of Bucyrus-Erie Diesel draglines operating in India on the Sukkur Barrage was only 4 cents per cubic yard, and that the present cuts contemplated were ideal dragline work. Further, even if the full cost of two machines was written off on this scheme alone, a saving could still be shown on their estimate, although the present operation only represented about one year's work for the two Bucyrus-Erie 50-B Diesel machines (with 50-foot booms and 1½-yard buckets) under consideration.

Erecting the Machines in Burma.

The crux of the matter then lay with the possibility of getting machines from America at work on the site in time to complete one of the cuts by June, 1929, when the seasonal floods would interrupt the excavation. Eventually the Chief Engineer decided to take the risk, but owing to special governmental sanction having to be obtained it was not until October 16th that the order for the machines reached the Bucyrus-Erie Company.

Machines Delivered at Rangoon in 69 Days from Date Order Received

The latter had already made special arrangements to insure express delivery. The machines

Over 50,000 yards in three weeks was made by each of the Bucyrus-Erie 50-B Diesels. Note the amount the bucket is holding.

To leave a wide berm the machines dumped on a 90-degree swing. Canal measures 35 feet wide by 15 to 20 feet deep.

left the Works at Evansville within a week, were delivered at New York a few days later, put straight onto a fast passenger steamer for Liverpool, transshipped there just in time for the fortnight sailing of the passenger steamer to Rangoon, and actually arrived in Rangoon on December 23.

When it is considered that the steamer takes eight days to Liverpool and thirty-one days to Rangoon, it is probable that this delivery consti-

From left to right: Mr. Davie, manager for Messrs. Wm. Jacks & Company, Bucyrus-Erie Distributors in Burma; M. T. Nunes, Chief Engineer, Burma Irrigation Department; Mr. Guthrie, Erecting Engineer; Mr. Aston, Superintending Engineer, River Training Circle, Burma P. W. Department.

tutes a record for shipment of important machinery units from America to Burma.

In Rangoon, J. Guthrie, an engineer of wide experience in the erection and operation of Bucyrus-Erie machines, without losing a day, commenced the difficult task of getting the machines in their packing cases on to small barges to be towed up the river several days' journey to the site

One of the 50-B machines moving out of erection pit on way to job.

at Myitkyo. The site was just the river bank, with nothing except one small crane to assist in unloading and erection, and no workshop available within miles.

Each of 50-B Draglines Exceeds 50,000 Cubic Yards in First Three Weeks' Operation

The first machine actually started work January 28th, and the second on February 5th. The machines then had between four and five months' time to complete approximately half of the total excavation contemplated, or about 280,000 cubic yards. This would require an output of about 35,000 yards per month per machine, against an estimated output per machine of 37,000 cubic yards. At the moment of writing, on February 25th, they have completed three week's work and each machine has already excavated over 50,000 cubic yards. Working three shifts a day, each has made 13,000 cubic yards in excess of the total estimated production for an entire month.

The average cut is from 15 to 20 feet deep, about 10 feet bed width and 35 feet top width. In order to maintain as wide a berm as possible, the machines are swinging a full 90 degrees to their maximum dumping radius. The ground is uniform, soft digging, the bottom four to six feet being under water. The buckets fill well, as the accompanying photographs show, and also dump clean.

If the machines continue working at their present rate, they will not only be able to complete the first cut, but in addition will finish most of the second cut before the floods arrive.

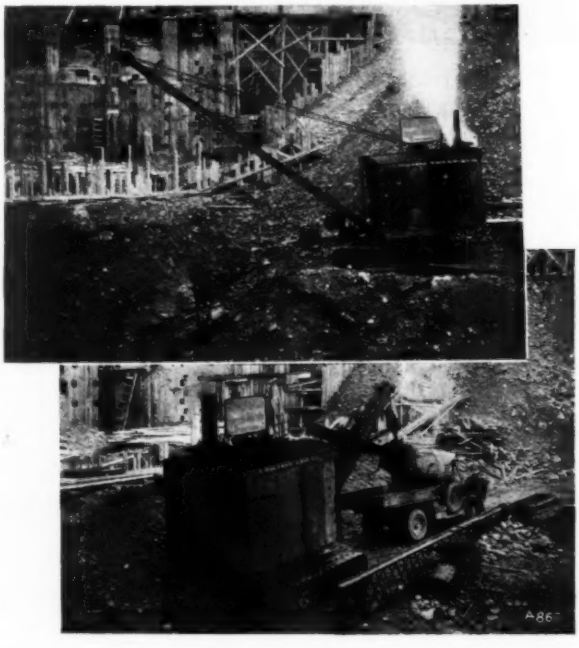
Much credit for the excellent results obtained is due to the keen interest taken in these machines by the Burma Irrigation Department Officials, and to the enthusiasm with which Mr. Guthrie has inspired his staff, who are using their best efforts to get the cuts through in time.

Wire Netting Makes Inexpensive Motor Roads in Africa

Durban, Natal South Africa, is experimenting with wire netting in making an inexpensive good motor road on the sandy South Africa soil. A demonstration was made at Stellawood by Mr. F. H. Acutt, showing the method, which was used with great success in Palestine and Egypt during the War, which is to lay down 2-inch mesh wire netting over the sand. Despite the heavy traffic, the wire remains on top of the soil and binds it together, making it harder and harder with use. The experiment was in connection with the laying down of the new marine drive along the top of the bluff.

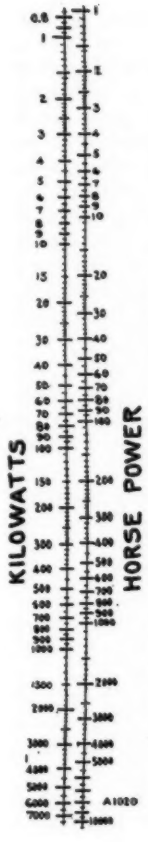
Excavating for Basements in Sweden

The value of convertible shovel equipment is well illustrated in the views below taken in Stockholm, Sweden. The owners are using this Bucyrus-Erie



Type A steam shovel and dragline for basement excavation in the central part of Stockholm. On this job, after digging in as a shovel, the machine was converted to a dragline to finish the deeper excavation.

FIELD NOTES



A Kilowatt Horsepower Scale

Here is a scale that gives the kilowatts in any number of horsepower in a jiffy. Or, it will give the horsepower in any number of kilowatts. As will be noted it is complete from 1 to 10,000 horsepower, within which range most powers are included.

For example, how many horsepower in 1000 kilowatts? Just glance across from Kilowatt side to the Horsepower side and there is the answer — 1340 horsepower.

Or, how many kilowatts in 1000 horsepower? Glance across in the opposite direction and there is the answer again — 750 kilowatts.

Of course, the exact answer is 745.65 Kilowatts, but for most ordinary and practical purposes 750 will do very well indeed, thank you.

I doubt if it would be possible to make a chart more compact than this and yet include such a wide range of power. A chart could be made more accurate, no doubt, but that would require much painstaking work, and in the end this chart would very likely prove to be just as useful for ordinary work.

— W. F. SCHAPHORST, M.E.

Managing Common Labor

By GEORGE L. BANKS

I am nearly sixty years young. I say young because I feel young and can outwork most of the young men I hire — if I have to. I generally manage my work so that I don't have to, but every man that works for me knows that I can take a hand when necessary, and will not ask them to do any task that I cannot do myself.

The forty years of my working life have been almost equally divided. About twenty of them have been spent working for other contractors, and about twenty years I have taken small contracts and hired other men to work for me, so I have an abundance of experience both in working for other contractors and in having men work for me.

George Hall, a contractor that used to run the Seattle Coal bunkers in winter time and grade streets and building lots with his teams in the summer time, was one of the first contractors that I ever worked for. He was a kindly man, though fretful, and given to complaining in season and out of season, and his teamsters and pick and shovel men soldiered along just about as they pleased. Mr. Hall really had too many irons in the fire; most of his own time was taken up at the coal bunkers, and he had no regular paid foreman on the grading jobs, though a sort of a head teamster did the little directing or mis-directing that was done on the job. I honestly tried to do my best for him, but it was discouraging to see the work mismanaged so that even much of my own work went for naught.

One morning when things were going worse than usual, I got disgusted with the whole business, and went off to one end of the lot where we were trying to grade, and started to mine out the sand from under the hardpan that they had been trying to plow and scrape. And while I was working thus, just as I pleased, and the rest of the gang were mostly gathered around the plowman who had broken a clevis, the contractor came out on the job. He first went up where the teams were and scattered them out into some pretense of activity; then he came down where I was and began complaining of the little accomplished.

I listened to him as patiently as I could for a while and then said, "Mr. Hall, I have only worked for you a little over a week, but I have done the best I knew how. I am no tell-tale and am not going to say anything about the work the other men have done or not done, but I will tell you this, you need a regular foreman on this job."

By using a bar, I was breaking off huge chunks of hardpan that I had mined, and he was silent for a moment as he watched this new method. Then he said, "Suppose you take charge of it."

Well, that was my first experience managing men, and I had about the worst bunch to manage that I ever got hold of. You see this was way back in 1898 in the Klondike days, and most of the real live hustlers had either gone to the Klondike or taken advantage of the scarcity of labor to get some better job than pick and shovel work, and to cap the whole thing, Hall's gang was hopelessly spoiled by mismanagement or no management at all. And as you can easily imagine most of the old hands, especially the teamsters, were rebellious at having a comparatively new man put over them. Well, I fired several of the pick and shovel hands and got the rest to working fairly well, but the teamsters were almost openly rebellious. Finally the head teamster who had been a sort of boss before I took charge, pointedly refused to obey my orders.

"Go to the office and get your time," I told him out of patience with the whole gang of teamsters.

He went off laughing. He had worked for Hall over three years, and even I was doubtful whether I had fired him or lost my own job, for I was determined that if he was allowed to come back I would quit. He never came back, and the other teamsters, now that the ringleader was fired, obeyed me with a new respect.

But I still had my troubles. Monday morning was the worst, it seemed that nearly every one drank in

those days, and they would show up Monday morning groggy and run-down, if you know what that means, and some of the worst drinkers were really the best workers when sober. I did not drink at all in those days, but early in my experience as a foreman, I bought a bottle of whiskey, and set it on the shelf of the little box-like office that I hauled around from one job to another. When I saw one of these really good workers, bloodshot and all of a tremble as he worked Monday morning, I would walk up close to him and say in a low tone, "Come up to the office." He would come up looking like he expected to get fired, and I would pour out a good-sized drink and say, "throw that into you and then get down there and really work."

Blame me if you will, ye strict moralists, — that drink on Monday morning was in my eyes a justified remedy for a fault that was then seemingly unpreventable, and my conscience has never bothered me on that score. But honestly, I believe smoking cigarettes hindered the work more than drinking. Men got drunk and then got sober again and seemingly were as efficient as ever, but a cigarette fiend was lighting a coffin nail or borrowing a match a third of the time he was on the job.

I have seen a scraper teamster drive up to another and stop his team and call out: "Hey Bill, got a match?" The teamster addressed would stop his team and search his pockets, then they both would light up. Another teamster would also stop and light his coffin nail, and the whole gang would be slacked up or stopped entirely for several minutes. Mind you, I am not saying a word about the morals of smoking or not smoking, but I want to warn other contractors and managers of men against letting confirmed cigarette fiends hold up the job. It just doesn't pay.

I had noticed when I was working as a laborer for Mr. Hall that every time he spoke the whole gang stopped to listen to him, and as he spoke a good bit, he naturally hindered his own work. So early in my foremanship I made up my mind that I would speak as little as possible to the gang as a body. I have found it much more effective to walk up close to a man and give him the required directions in a low voice that did not carry to or hinder his fellows. Sometimes, of course, it was necessary to give one man a command or reproof that was really meant for the whole gang, but I avoided humiliating any good worker in this way as much as possible.

One of the greatest difficulties I found in getting really efficient work from my men was in getting them to think or plan their movements effectively. Quite a few men would work as energetically as any boss could wish, but used fully three out of five movements in scraping together a shovel full of dirt in a neat little pile, and a fifth movement to load it on his shovel, when one long swinging thrust would have accomplished the whole task. Of course, you can hardly expect the highest type of intelligence in a man who works with a pick and shovel, and I have shown such men over and over how to save themselves unnecessary exertion, and at the same time do more effective work, until it seemed that a ten-year-old child would learn the most efficient way, and yet some of them it seemed just couldn't learn.

As I have grown older in the contracting business, I have, however, grown increasingly slow about firing one of these hard but ineffectual workers. There is nearly always some place he will fit in and make a good man if you can just study out the best place for him.

I suppose I am a little bit of a crank on the eliminating of every unnecessary motion, but it is a science yet in its infancy, in fact the whole business of handling a gang of common laborers is not done in the average road-building or grading gang much different than it was fifty years ago. Now I claim that this is all wrong; look at the improvements in all kinds of machinery. Why not try to improve the common laborer a little? The trouble is that none of these young fellows start out intending to be common laborers, and through lack of ability to do anything else, they are forced to take a pick and shovel job. Their only thought is to muddle through it in some way until they can get something better.

I can today, in my fifty-ninth year, take a pick and shovel and go out and get a job of digging at a dollar and a quarter per yard, and can handle a yard an hour without unduly fatiguing myself. That makes ten dollars for eight hours' work, but to make it you have to work efficiently and eliminate every unnecessary move or you will work just as hard and only handle half as much.

Much of the excavating and road building that we used to do with pick and shovel is now done by machinery, but there will always be some of this kind of work that will have to be done by laborers, and it seems to me that it is high time that a course in the manipulation of the pick and shovel was taught by some of our industrial schools. But no, they would hoot at the idea; they want to teach you something higher and more complicated.

If you find your men as I was when I first reached Seattle and went to work for contractor Hall, awkward and prone to make useless moves, it is up to you to educate them to eliminate every move that is not absolutely needed. As I said before, it is a science in its infancy yet, but I prophesy that inside of twenty-five years, no Greek or Latin or any other dead language will be considered as important as this science of managing men.

Practical Way of Closing Opening Around Small Pipe

Very often small gas, water or air pipes run through wooden partitions or a wall of wood to the outside. The hole for the pipe is necessarily made quite a bit larger to accommodate the fittings which from time to time may have to be drawn through it with the pipe. Tightly closing the hole has to frequently be done to keep out the cold, rain or gases. A quick, practical and neat way of doing this can be accomplished with an old iron washer just a little larger than the pipe, together with several flat rubber washers or gaskets made from an old inner tube of a tire. Cut the iron washer in two, drilling at least two holes in each piece for nails. Cut out several

flat washers from the inner tube, the outsides of them the same as that of the washer, and the holes in the centers just a bit smaller than the pipe. Open them up with an angling cut to the center to go over the pipe, slipping them over so the joints will break. They can be quite easily handled if touched with a bit of thick paint or cement, to temporarily hold them in place. Then tack on the halves of the washer, which will compress the gaskets, and press the rubber snugly to the pipe. This simple device or method securely closes the opening, yet is quickly and easily removed when necessary. — *Frank W. Bentley, Jr.*

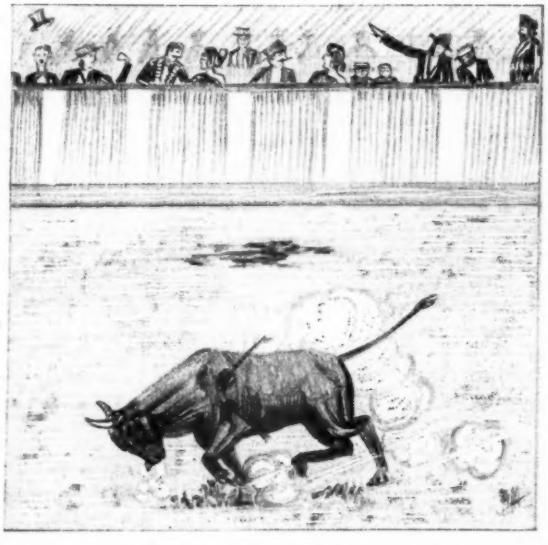
The Steam Shovel

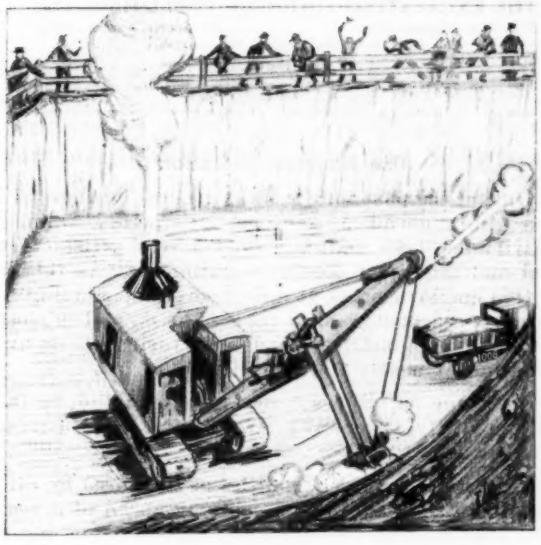
The construction company
Has moved to State street now.
The big watchers have also
Moved to State street.

And watch
The wild bull
Toss his gigantic head,
Snap his massive jaws
And snort mad snorts
Of white steam
From his brass nose,
While pawing the ground
And swallowing yards of dirt
And tons of brick bats.

The big monster knows
He is being watched
And struts his full length,
Forward . . . backward . . .
Turning around . . .
Bellowing, puffing, snorting,
Pawing and throwing the dirt
Before his big watchers.

Some who chew gum and giggle
Between powdering noses
And holding short skirts
From the wind.





Some who wear spats and smoke cigarettes
And are more interested
In the gum chewers and gigglers
Than the big dirt thrower.
Some who chew tobacco and spit
On the sidewalk,
Watching for the boss and thinking
About a job.
Some who stand with open mouths,
Pointing fingers
And asking questions
That are never answered.
Some who wear stars and brass buttons
And get paid for watching
The watchers.
Some who are on errands and steal time
From the office
And also get paid for watching . . .

All these
The big wild bull sees
And struts his full length
Forward, backward,
Turning around,
Bellowing, puffing, snorting,
Pawing and throwing the dirt,
Knowing he is the big bull
And the big noise.

— *John Minnich Wilson*
In Detroit Free Press.

The EXCAVATING ENGINEER

A Monthly Publication Devoted to Excavating and Allied Subjects

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The Business Situation

During the past four months general business has been going ahead at a very satisfactory volume. Activity has been maintained at a very satisfactory level and sentiment continues optimistic. As this is written employment is at a high level and tending to increase; seasonable retail trade is brisk, and in most of the major industries the manufacturing plants are operating at nearly full capacity.

We quote as follows from an introduction to the National City Company's April letter on Business Conditions.

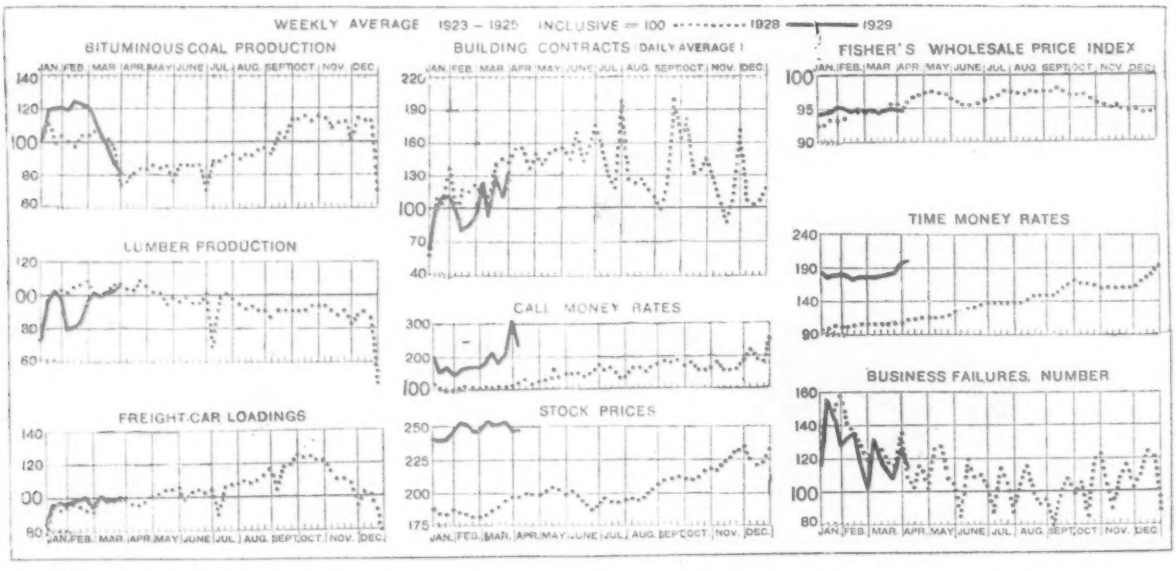
"Distribution of commodities as measured by railroad freight car loadings is running ahead of a year ago. The "miscellaneous freight" classification, indicative of commodities in general, shows the largest gain, and the increase is participated in by the majority of districts. Gross revenue receipts of the railroads this year are running substantially ahead of 1928 and the gain in net income is even more marked. Bank debits are approximately 16 per cent higher than last year and electric power output so far this year shows a gain of 10 per cent. Reports coming in from different sections of the country are almost unanimous in their testimony of good business conditions.

"Maintenance of abnormally high money rates reflects the strain under which the banking system is put because of the large demands for credit for secured loans, together with the Spring seasonal requirements for commercial and agricultural purposes now appearing. Nevertheless, there is no evidence that these firm rates have affected the general business situation, and the only possible weak spot of importance is in new building construction which has fallen under the volume of a year ago."

It does not seem fair to refer to the condition of the building industry as a weak spot, for according to the reports of the F. W. Dodge Corporation, the national construction record shows an increase of 34% over the total for February of this year. It is most certainly out of order to say at the present time that this activity in the construction field, which has been in no small measure responsible for the business activity of the past few years, has run its course. While new building contracts awarded this year have run almost 20% below the corresponding period of 1928, the decline is mainly in speculative and weakly financed residential buildings in the larger cities. Non-residential building contracts have been greater in value this year than ever before.

New building and engineering work contracted for during the past month in the 37 states east of the Rocky Mountains amounted to $484,847,500, according to F. W. Dodge Corporation. The above figure shows an increase of 34 per cent over the total for February of this year, but there was a drop of 18 per cent from the March 1928 total. Of the eight districts reviewed below, Texas was the only territory showing a drop from the preceding month's totals, and it was the only area showing an increase over the totals for March of last year.

Analysis of the March building and engineering record showed the following important classes of work: $197,172,200, or 41 per cent of all construction, for residential buildings; $75,583,800, or 16 per cent, for commercial buildings; $71,508,200, or 15 per cent, for public works and utilities; and $55,837, or 12 per cent, for industrial projects.


WEEKLY AVERAGE 1923 – 1925 INCLUSIVE = 100 ····· 1928 —— 1929
BITUMINOUS COAL PRODUCTION
BUILDING CONTRACTS (DAILY AVERAGE)
FISHER'S WHOLESALE PRICE INDEX
LUMBER PRODUCTION
CALL MONEY RATES
TIME MONEY RATES
FREIGHT CAR LOADINGS
STOCK PRICES
BUSINESS FAILURES, NUMBER
JAN. FEB. MAR. APR. MAY JUNE JUL. AUG. SEPT. OCT. NOV. DEC.

45261—29

Last month's contract total brought the amount of new construction contracted for during the past three months up to $1,256,089,300, as compared with $1,485,067,000 for new construction contracted for during the first quarter of 1928, the decrease being 15 per cent.

New contemplated projects reported during March in the 37 Eastern States reached a total of $886,075,100. There was an increase of 15 per cent over the amount reported in February 1929 and there was an increase of about $2,000,000 over the amount reported during March 1928.

For the past few months the money situation has been worthy of careful attention. During the last week of March there is no doubt but that the country faced a crisis, but prompt action by the New York City Banks in offering to provide funds to take care of the stock market's requirements served to avert any fear, and the present action of the market would indicate that danger of a general collapse of the security markets, such as would have a serious effect upon business, has passed. The wise investor of the immediate future will voluntarily make sure that his borrowings are on a much wider margin, and will hold as large a supply as possible of liquid capital.

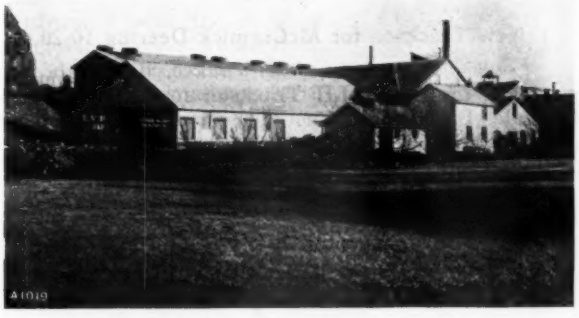
Steel Mill operations have been very high — an average 95 per cent of capacity. And in spite of this record production, unfilled orders have increased, and the first three months of this year was one of the most successful quarterly periods since the World War.

Automobile manufacture has established a new high record in production during the past quarter.

Orders for electrical equipment are being placed in fairly large volume, and are going to many of the different branches of the industry. Agriculture implement manufacturers are expecting another record year. Industrial machinery and the tool industries are enjoying active sales. The textile industry looks forward to an active year.

Quarry Operations at Historic Northampton Plant of Atlas Portland Cement Company

(Continued from page 197.)



The original Atlas plant at Coplay as it appeared in 1888.

Atlas Chosen for World's Greatest Construction Project and for Masterpieces in Architecture and Sculpture

On the world's greatest construction project, the Panama Canal, Atlas was used exclusively. More than 32,000,000 bags of cement were furnished, more than 800,000 samples were taken and tested by the United States Government and not one bag was rejected. In more recent years as concrete became better appreciated and more thoroughly understood, John J. Earley, an architectural sculptor, whose works have a world-wide reputation, through a new technique has created in concrete made with Atlas Portland Cement, masterpieces in architecture and sculpture, that will stand for all time as monuments to the beauty and dependability of concrete.

The Parthenon at Nashville, Tennessee, is the only known authentic reproduction of that famous structure, and the restoration of this building was carried out complete with Atlas Portland Cement, both gray and white. At Washington, D. C., in the Church of the Sacred Heart, Mr. Earley has produced all of the beauty in design and color that heretofore was possible only with marbles and mosaics, and this has been done in concrete made with Atlas. At Chicago there stands the world's greatest sculptural masterpiece by Lorado Taft, The Fountain of Time, and this gigantic piece of sculpture was created in Atlas Portland Cement with the technique practiced by John J. Earley.

These and other similar achievements, over the period of its more than thirty-eight years of existence, have made the Atlas Portland Cement Company an outstanding industrial figure in the history of American progress.

Excavation for Road Work for 1929

This month we add a few more details to our highway construction program for 1929 to help complete the picture presented in our January issue, and supplemented by further reports in our February, March and April numbers.

Michigan

The construction program for the State of Michigan is still in the process of being developed, but we are able to make the following estimate based on what has been done in the past and the amount of money that is expected to be available for this season's road building. It is expected that Michigan will build about 560 miles of highway during the year of 1929, including both new roads and construction. The cost of this work will be in the neighborhood of $5,600,000. It is estimated that this work will involve handling of 2,800,000 cubic yards of excavation, and approximately 2,000,000 of this will be suitable for shovel operation. In addition to the above, there is left over from 1928 approximately 800,000 cubic yards of excavation which will cost $1,600,000 to complete. Michigan also expects to do 385 miles of paving at a cost of $14,920,000, and approximately 100 miles of graveling at a cost of $1,500,000.

South Carolina

Through the adoption of a bond issue of $65,000,000, South Carolina within the next four years will speed up her highway program and make possible a great improvement in her highway system. The State will pool the gasoline tax and vehicle license fee income for retirement of the bonds. The South Carolina gas tax has been increased from 5 to 6 cents, with one cent reverting to counties. In effect, motorists will pay but one cent per gallon of gas for the benefits received from the bond issue.

EQUIPMENT YOU OUGHT TO KNOW ABOUT

New Dump Body Built by Mack

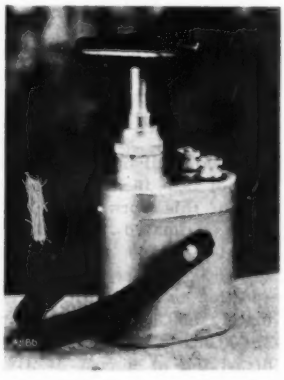
Mack Trucks, Inc., have in production a new line of standard dump bodies designed to cover the major portion of dump truck requirements, and meet the exacting demands of the excavating field for ruggedness of construction.

The announcement of the company states that all of these bodies are built of No. 7 gauge sheet steel, and are constructed to taper 4 inches from front to rear, a feature which insures rapid emptying of body even with sticky material. The bodies have full-length 6-inch running boards with round corner front, which makes for a smooth rub rail, full length of body, and provides a substantial front corner body bumper. Front headboard, tailgate posts and gate all extend well above the body sides proper so that sideboard extension and large opening tailgate are provided for.

Further information may be secured by writing *Mack Trucks, Inc., 252 West 64th Street, New York,* and mentioning *The Excavating Engineer.*

Hercules Perfects New Type Blasting Machine

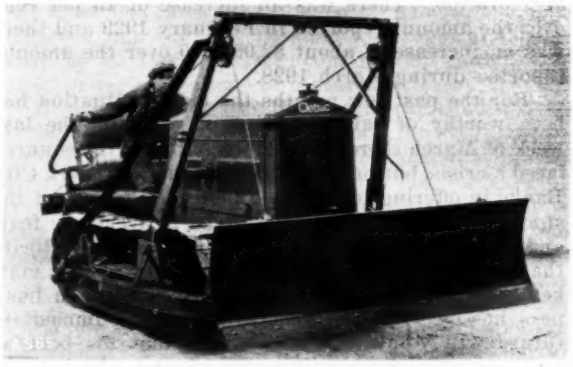
Representing a new departure in American electrical machine design, a new pocket size blasting machine is announced by engineers of the *Hercules Powder Company, Wilmington, Delaware.*



It is the first machine of American design to apply the dynamo principle to a blasting machine of such compactness. It weighs only 4¾ pounds, and will slip into an ordinary coat pocket. The dynamo principle assures its permanent capacity in contrast to the old magneto type which lost power with age. It is rated to fire ten electric blasting caps connected in series, but all tests have shown a 100 per cent power reserve.

The new machine is the development of three years' work and experiment. It is called the Hercules 10-Cap Blasting Machine, and is an extremely convenient size for any kind of blasting where not more than ten shots are fired at once. Any reader can secure a circular description of the new machine by addressing the *Hercules Powder Company* and mentioning *The Excavating Engineer.*

A New Miami Earth-Moving Combination



A new power-operated Bulldozer for the Cletrac 30-A, which attaches to the standard Cletrac extended axle, has been announced by the *Miami Trailer-Scraper Company of Troy, Ohio.*

A number of improved features have been incorporated in this Bulldozer, which, since it is entirely independent from the tractor drawbar, does not interfere with the free use of the tractor as a pulling unit.

The 7-foot Bulldozer blade is carried on heavy "H" beams — it is raised and lowered by two (2) steel cables attached at the ends to insure an even lift in places where one end only of the blade is under load. Suitable rub plates eliminate all side movements.

The sturdy Miami Power Winch manufactured for use with this Model is so designed that the same winch which operates the Bulldozer is also available for power use with the Miami One-Man Power Scraper, Miami Power Dump Trailers and the Miami Backfiller, as well as the ordinary winch uses.

New Trackson for McCormick-Deering 10-20

Trackson Company of Milwaukee, Wisconsin, announces the Model LH Trackson for the 10-20 McCormick-Deering tractor. The model LH Trackson Full-Crawlers gear the power of the 10-20 McCormick-Deering tractor to the ground with sure-footed, ground-gripping crawler tracks. They are of all-steel construction, with electric steel castings where the strains are greatest, and built with long life, and sturdy huskiness throughout.

Trackson sprockets are self-cleaning and the track is non-clogging and of non-marring type. Many improvements in Trackson de-

sign have been incorporated in model LH such as: extra heavy, pressed steel frames; rear sprockets with manganese driving teeth; new type track shoes and truck wheels with increased wearing surfaces.

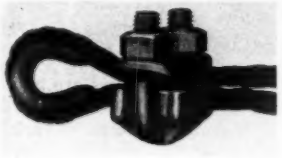
Model LH is furnished as a complete unit with the 10-20 from the factory in Milwaukee, Wisconsin, or it can be readily installed in the field.

For further information regarding this model write to the *Trackson Company at 500 Clinton Street, Milwaukee, Wisconsin,* mentioning *The Excavating Engineer.*

New Cable Clip Has Two Fully Grooved Jaws

A cable clip with a considerably larger holding surface has been put into production, in a full range of sizes, by the *Eureka Metal Products Corporation, North East, Pennsylvania.*

It is a patented clip which, it is claimed, will carry three times the maximum load of an ordinary clip — and gives equally good results both on wire rope and messenger strand.



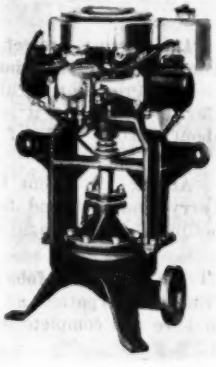
Besides giving a larger holding surface, the Eureka Clip saves cable — there is no distortion of cable whatever. The large surfaces of both the top and bottom plates are grooved for the lay of the cable, so that neither of the cables is gripped by the U-bolt.

Equally important is the fact that any size wrench can be used to tighten up the Eureka Clip. There is no chance whatever of injury to the cable, regardless of the size wrench that is used — no restriction on the length of wrench handle is necessary. This clip's double-grooved surface prevents any distortion of the cable, no matter how tight the nuts are pulled down.

Evinrude Announces New Twin Centrifugal Pump

Evinrude announce an entirely new, larger capacity, twin-motor-equipped, self-contained pumping outfit.

This pump, incorporating the features of portability, low cost operation, and enormous capacity, fills a definite need for contractors confronted with the problem of moving excess water from ditches and trenches, supplying pavers and mixers with water, and a hundred other every-day jobs.



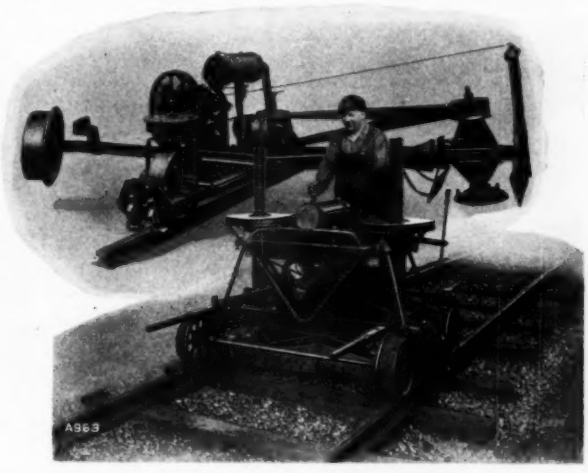
This new improved centrifugal is powered by the Evinrude 6 H. P. "Fleetwin" motor, a modern twin engine practically vibrationless. Weight has been decreased to slightly over 100 pounds, and notwithstanding the fact that the pump is no larger than a small keg of nails, the manufacturers claim it is capable of pumping 15,000 gallons of water an hour and reaches a head of 50 feet with ease. The operating cost is quoted as not exceeding 15 cents per hour or 1 cent per thousand gallons.

Full information may be secured by writing *Evinrude Motor Company, Milwaukee, Wisconsin,* and referring to *The Excavating Engineer.*

Nordberg Adds Two New Machines for Track Work

The Nordberg Manufacturing Company of Milwaukee, Wisconsin, have recently developed two new machines for saving money on railroad track work.

One of these machines, called the Nordberg Power Jack, replaces the hand jacks now ordinarily used when ballasting track. This machine is nothing more or less than a patented, gasoline-driven, set of two power jacks designed for laying track on ballasting or reballasting jobs. It saves labor, money and time. The machine is not self-propelled, but is equipped with roller bearings and can be easily pushed along by one man. It is light enough to be removed from the track



to allow traffic to pass and be quickly replaced. Only one man is required to operate the machine, and it will do the raising for a gang of 50 to 80 tampers. With two screw jacks on the machine very accurate track levels can be secured. These jacks are so arranged that they can be raised independently, or one jack raised and the other lowered at the same time.

Clamping the machine to the rails is accomplished in a second's time by the mere throwing of a lever. In place of digging deep holes for base blocks for hand jacks, these jacks clamp right to the rail and need no excavating below the level of the rail base. The machine has a lifting power of 25,000 to 30,000 pounds, which can all be put on one rail or divided between both rails as desired.

On each side of the power jack is a spotting target, which swings outward for the foreman to sight over for raising the track to the desired height. The machine is also equipped with a spirit level, which enables the operator after jacking the first rail to the desired height to bring the other rail to the same level.

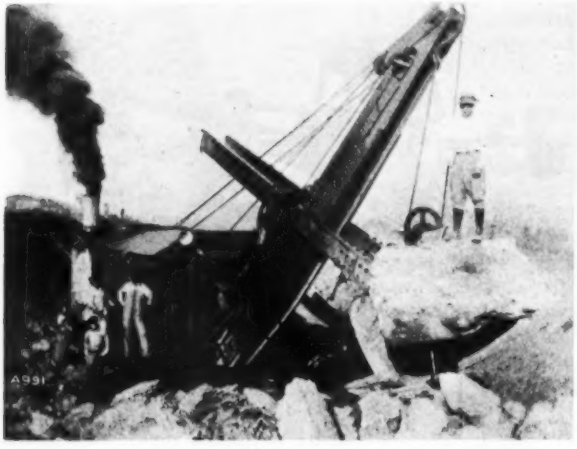
The other machine is called the Nordberg Adzing Machine, and is intended for adzing ties when relaying rails. It will prepare the ties with more accuracy than is possible by hand adzing, besides greatly reducing labor cost. Production is guaranteed at 10 ties per minute under any condition, and the manufacturer's claim that this number will be easily exceeded in practice. For a steel gang relaying 10,000 to 15,000 feet of rail per day use of three machines are recommended.

For further information regarding these machines write to the *Nordberg Track Machine Department, Milwaukee, Wisconsin,* mentioning *The Excavating Engineer.*

SHOTS FROM THE FIRING LINE

Cuba

R. A. Jackson, operator for Warren Bros. Company on the Central Cuban Highway, sends us the snapshot below of the Bucyrus-Erie 50-B which he is operating on this job. He writes "This machine is giving very good service, and making its twelve, ten-hour shifts per week. Most of the



excavation is rock." Victor Feuerstine, superintendent of the day, is standing on the rock in the dipper, with Mr. Jackson and his native Cuban fireman and oiler on the running board.

New Jersey Notes

BY G. R. ENGLAND

Versaggi Bros. Construction Co., Inc., of Wildwood, New Jersey, used the above Bucyrus-Erie Type 1030 clamshell in excavating for a water storage reservoir for the city of Wildwood, New Jersey. Excavation amounted to 800 cubic yards of sandy material, and the entire quantity was handled in less than two days with a cost for gasoline of $10.00. Angelo Versaggi tells us that they are most enthusiastic about the two Bucyrus-Erie machines, both of which, he says, "Have performed perfectly over a period of a year."

The above two Bucyrus-Erie 50-B dragline-cranes are handling a thirty-mile job of ditching for T. A. Gillespie Company on the new water main from Wanaque Dam to Newark, New Jersey.

New York Notes

BY E. P. DOYLE

On April 28th members of the Ceramic Society of England will arrive in New York for their visit to the United States and Canada, which will extend from April 28th to May 18th. This visit of the Britishers will coincide with the summer excursion meeting of the American Ceramic Society, and will include a tour and visit to the most modern Ceramic plants in the United States and Canada. The American Ceramic Society will act as host.

New England Notes

BY J. C. ALEXANDER

Highway work is starting up again in New England. The trend seems to be towards heavier and heavier excavation on the State highway projects as the slogan now is "Straighter and Wider Roads."

The largest project in Massachusetts so far has been awarded to the Waterbury Road Construction Co., Romolo De Cesare, President. This is another section of the Boston-Hartford turnpike, it is about seven miles in length and has about 135,000 yards of dirt to be moved.

Among our recent visitors have been **Dominic Federico, Larry Franciosi, and Joe Ambrose,** runners who will be soon pulling the levers again.

The new watch fobs have created quite a stir. We ask our friends to be patient as our initial supply has been exhausted, and we will complete our distribution as soon as possible.

Carmino Frangioso & Son, Mattapan, Massachusetts, report a busy spring. Cellar excavation and developments are their specialty. Two new trucks recently purchased give them an ideal outfit for this class of work.

The annual outdoor Road Show of New England will be held in Cambridge, Massachusetts, near the Cottage Farm Bridge this year. Over a million dollars worth of equipment was exhibited last year and even more will be had for this season's show.

An ardent Track Machine booster is Harry M. Waugh, who used it to advantage in building the Norfolk & Western Railroad Yards at Williamson, West Virginia.

Where Track Must Be Shifted Or Raised

Contractors engaged in railroad construction work often encounter track shifting and raising jobs that would be exceedingly difficult if attempted by hand. This is what Mr. Waugh writes:

"We are pulling track out of mud and rock that we could not handle with No. 1 Track Jacks without first cleaning some of the rock and mud off, and also shifting track without cutting the rails, that could not have been done with hand forces. Every official in my organization as well as myself find that we could not do without the shifter after having used it."

In another instance Mr. Waugh raised a stretch of track and shifted it to a new location with the Track Shifter in one hour, which if done by hand would have required the services of 30 men for a period of 10 hours.

No matter how difficult a track shifting or raising job you may have, if it can be done by hand, a Track Shifter will do it quicker and cheaper.

A narrow gauge machine is also available for track as narrow as 36 inches. Two new machines for track work have recently been offered, which are of interest to contractors. One is the Power Jack to replace hand labor; the other is an Adzing Machine, which does the work of hand adzers on rail laying jobs.

Write for bulletins.

Nordberg Mfg. Co., Milwaukee, Wis., U. S. A.

THE NORDBERG PATENTED TRACK MACHINE

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SHOTS FROM THE FIRING LINE — Continued

Winslow & Cummings new gravel plant at Wilton, New Hampshire, is all ready for this season's concrete road business. Its location is quite strategic for the road contractors doing business in southern New Hampshire.

Well, look who's back with us again — "Guy" Cleveland. Mr. Cleveland has been spending all winter down Maine, and is now back with us to take up shovel work.

Canada

New Brunswick

BY E. P. DOYLE

Reed D. Fail, operator, is handling a Bucyrus-Erie Class-14 for Brodrick Brothers at West Saint John, New Brunswick.

Toronto and Vicinity

BY C. F. ENGLAND

Kendall Brothers, Limited, are making good progress on the excavation for the Bank of Commerce Building, Toronto. There is a considerable yardage of both earth and rock. They are working day and night shift, are using two Bucyrus-Erie B-2 machines, and hauling the excavated material away with a fleet of trucks.

The Hydro-Electric Power Commission of Ontario are starting up construction work on their power project at Alexander Landing. This work was started some time ago but has been shut down for the past year or so.

A. Cope & Sons, Ltd., are keeping all their shovels busy on work in and around the City of Hamilton.

Manitoba

BY J. I. MORAVEC

Work on the Hudson Bay Railroad has continued all through the winter and the laying of track is reported to have reached about 491 miles — only 19 miles from the goal. It is claimed that the track will reach Churchill by the end of March or early in April, and that freight at contractors' rates will be handled over the line soon thereafter. The line will not be in condition for handling Pullman cars before the end of August, 1929, and an impressive ceremonial will celebrate the formal opening, which is expected to be held about September, 1929.

Pittsburgh and Vicinity

BY J. S. WEAVER

Dave Simpson, the well-known Cleveland contractor, has a gas shovel and trucks working on the new Byers pipe mill near Baden, Pennsylvania.

The F. W. Scott Company, Hays, Pennsylvania, are making the dirt fly on their highway job near Ambridge, Penna.

The Harrison Construction Company, Pittsburgh, Pennsylvania, are moving a lot of material on their Monument Hill job. This is one of the largest contracts let by the City of Pittsburgh in some time.

Arnold City, Pennsylvania, has been selected by the Pittsburgh & West Virginia Railroad as the site for one of the two classification and distributing yards planned in connection with the company's 38-mile extension now under construction from Cochran Mills to Connellsville. This line will connect the Pittsburgh & West Virginia with the Western Maryland Railroad to the tidewater. H. H. Temple is Chief Engineer of the Pittsburgh & West Virginia Railroad and in general charge of the work.

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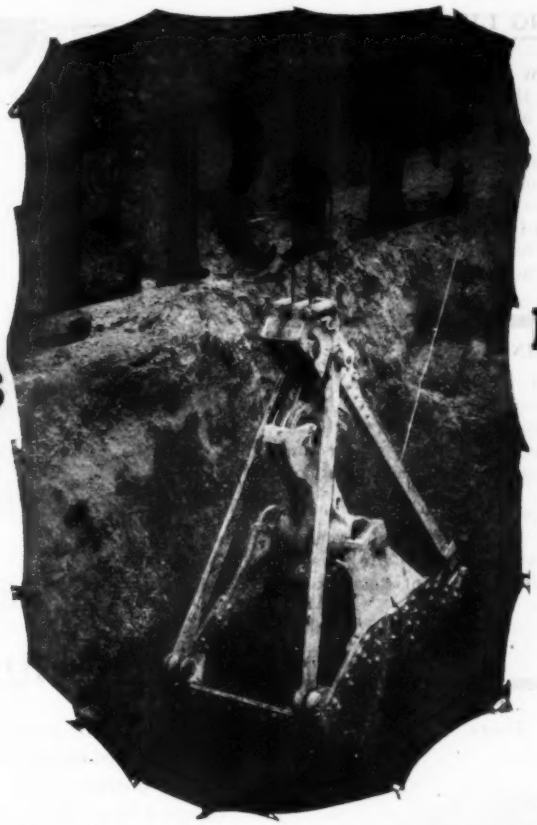

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There is a size for every crane and a type for every job. No matter how hard the digging will be Erie Buckets will obtain a big load at every grab, and be giving good service long after other buckets have worn out. Remember the crane you buy is only as good as the bucket you put on it.

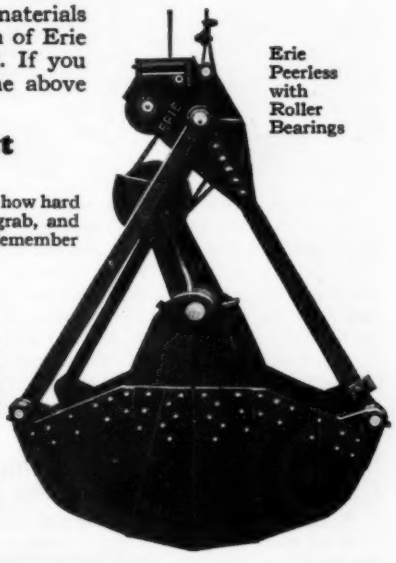
Which Would You Rather Have —

A slow bucket which obtains slightly more material per trip or a fast bucket that makes an extra trip in every four, and at the end of the day has handled considerable more yardage? Are you getting paid for capacity per trip or total yardage handled? Consider this carefully.

Buckets May All Look Alike But

they are not all alike, and before you buy send for the Erie Catalog and prices.

Erie Peerless with Roller Bearings



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SHOTS FROM THE FIRING LINE — Continued

Announcement was made a few days ago, by the Pittsburgh & West Virginia Railroad that **Corrado & Galiardi, Connellsville, Pennsylvania,** was awarded the contract of grading, masonry and concrete on a stretch of the extension extending from a point near Charleroi. The grading will amount to about 130,000 cubic yards.

F. J. McMahon, the well-known Cleveland contractor, was a caller at the Pittsburgh office a few days ago, and reports good progress on his highway job in Indiana County, Penna.

GEO. H. FLINN

George H. Flinn, President of Booth and Flinn, Ltd., died in Pittsburgh, Pennsylvania, on March 28, 1929.

Mr. Flinn was nationally known as the builder of large projects, chiefly the Holland Vehicular Tunnels under the Hudson River. His firm was engaged in the construction of tunnels under the Harlem River.

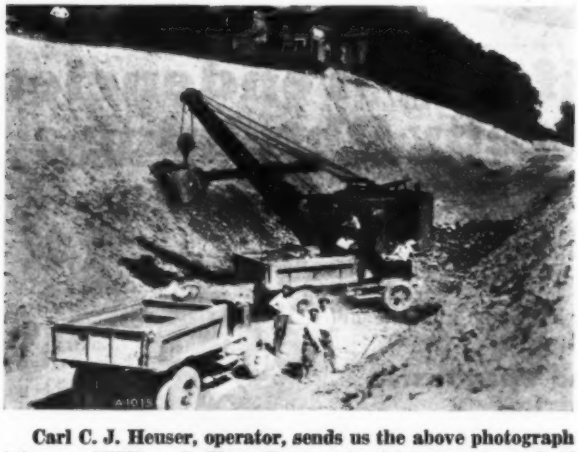
One of his largest projects was the construction of the Liberty Tubes through the South Hills, Pittsburgh, Penna.

Mr. Flinn was born in Pittsburgh in 1873. He was a graduate of Yale. He was an active independent Republican, as was his father, the late William Flinn.

Friends and associates throughout the field of excavation mourn his passing.

Pennsylvania Shots

BY J. I. MORAVEC



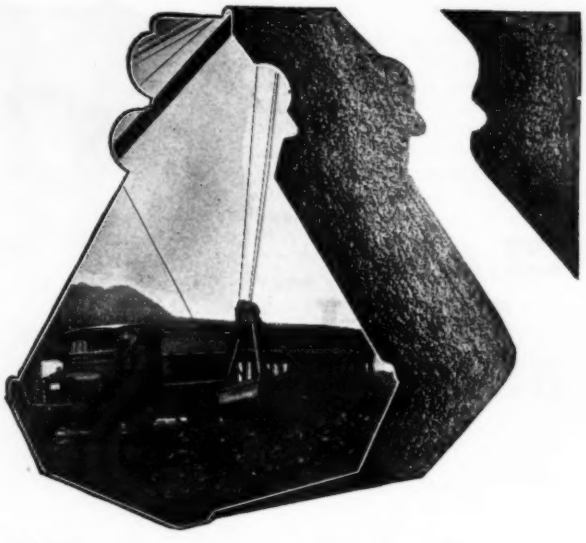
Carl C. J. Heuser, operator, sends us the above photograph taken on William C. Horn Company's eighteen and one-half mile road job between Lock Haven, Pennsylvania, and Renovo, Pennsylvania. In the cut shown, Mr. Heuser and the Bucyrus-Erie Gas + Air which he has been operating for the past two years, made two creditable record runs. One was the moving of 1170 yards in one day and the other, 960 yards moved in eight hours. Notice the accurate grade and beautiful side slope made by the machine. Needless to say Mr. Heuser is most enthusiastic about the Gas + Air. "It is a wonderful machine," is the way he puts it.

Detroit and Vicinity

BY P. M. RICHARDS

S. A. Healy and J. A. McDonald returned early in April from an extended Florida trip. Both report having had an excellent vacation.

L. L. Lauver recently made a visit to the Bucyrus-Erie South Milwaukee works. "Les" is one of the well-known Detroit dragline operators.



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And the bucket we put on your work is guaranteed for Durability, as well as Output—"Built to Dig, and Last While Digging."

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WIRE ROPE

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SHOTS FROM THE FIRING LINE — Continued

The County Drain Commissioners, Bert R. Walker, George E. Moore and William H. Wurzel, received bids for excavating the Black River Drain at Sandusky, Michigan, on April 5th.

The Barnard Curtis Company of Minneapolis were low bidders on Section One and Nelson J. Cole & Son was low bidder on Section Two. On Section Two, however, Carl Erickson was second low bidder and L. C. Fosket was a close third. Their bids were so close that at the time of this writing an award had not been made.

Henry Ianni's Bucyrus-Erie 50-B and 20-B machines are on the job in the village of Lincoln Park. The 50-B is in charge of Mr. Graffius and the smaller machine is in charge of George Bentley.

Ben Bentley recently completed a sewer outlet for the City of Detroit at the foot of Dearborn Street with his Bucyrus-Erie 20-B dragline.

The R. D. Baker Company are at this time engaged in building the sea wall on the shore of Lake St. Clair for the village of Grosse Pointe. The excavating in the lake is being handled by Dunbar & Sullivan with their Bucyrus-Erie Class-24 dragline which is mounted on a barge.

The Mark R. Hanna Company and the Northern Construction Company are both making rapid progress on the Detroit shore sections of the Detroit Windsor Tunnel. The shore work on the Canadian side is being handled by Spencer, White & Prentis and the Northern Construction Company. The work being done by the Hanna Company and Spencer, White & Prentis is in open cut, while both sections handled by the Northern Construction Company are in tunnel. The river excavation is being handled by the M. Sullivan Dredging Company.

Circuit Judge Frank L. Covert of Pontiac, Michigan, has lifted the injunction restraining work on the $2,700,000 Southfield Drain in Oakland County, and it is anticipated that this work will go ahead in the near future. One section of this drain was awarded to the S. A. Healy Company and the other to R. D. Baker Company.

Lennane & McIlvenna are using their Bucyrus-Erie 1020 on the construction of the Connors Creek Sewer at East Jefferson Avenue, Detroit.

The City of Flint are using their Bucyrus-Erie Type B-2 on street paving work.

Stevens & Wood are using their Bucyrus-Erie Type 1030 on construction work for the Consumers Power Company at Zilwaukee, Michigan.

The various gravel pits in the vicinity of Oxford are all working at full capacity. Bucyrus-Erie machines seem to be popular, there being in this vicinity one Class-24, two 50-B steam machines, one 50-B electric and three Type B machines.

Kentucky Notes

Operator I. N. Rhinehart sends us the accompanying picture showing a Bucyrus-Erie Type B-2 tunnel mucker which he is operating on a tunnel job at Sampson, Kentucky, for Boxley Bray & Company, contractors of Roanoke, Virginia. In writing Mr. Rhinehart says, "I am very much pleased with the speed and quickness of the shovel. I have been a steam shovel operator for several years, but the air beats steam."

Alabama Notes

G. C. Johnson, one of the dyed-in-the-wool Excavating Engineer fans, is at present running a Northwest dragline for Murdock & Cliett on a State Highway job on the Tennessee River near Huntsville, Alabama.

THE ARMSTRONG BIT DRESSER

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See P. & Q. Handbook, page 71, 1928
Keystone Metal Quarry Cat., page 160

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SHOTS FROM THE FIRING LINE — Continued

Southern States Notes

BY R. S. WELFER

J. L. McDuffy, a West Coast man, is now grading streets in New Orleans. He has been operating in Mexico. At present he prefers a fully revolving shovel here to a fully revolvered Mexican below the border.

J. E. Smith is again with D. G. Villere grading streets in New Orleans. He is operating a Type "A" Bucyrus-Erie steam shovel.

R. P. Burgeois will be in charge of equipment for Thomas H. Brockman on one of the new storm sewers which the latter will add to New Orleans' famous drainage system.

Mississippi River operators will be interested to know that George Tucker is now operating a Diesel dragline near Baton Rouge.

W. T. Thornton, who has done some good work locally for J. W. Gwin, is preparing to take his Bucyrus-Erie Type "B-2" shovel to Tennessee where there is considerable highway construction under way.

Alabama's highways were damaged to the extent of about $2,000,000 by recent floods. Prompt action is planned to repair these roads by letting the work to local contractors.

Operators who find trouble in keeping steady work can now violate the Jones law and get a long-term position on a shovel in the Convict Department in Alabama. Regular operators are being replaced by convicts at the State construction camps.

Excavating work on Birmingham's new courthouse, stopped in 1925, is being resumed. The Bessemer Engineering & Construction Company will use their Number Seven Type "B-2" Bucyrus-Erie on the job.

Hendricks & Kennedy, from South Carolina, have resumed their Alabama highway job after a long delay due to almost steady rains.

The Mid-South Section of American Society of Civil Engineers held a meeting in Memphis, Tennessee, April 29th and 30th. Invitations were issued by Major Stuart C. Godfrey of Fort Leavenworth, Kansas, Acting President, and by the Memphis Engineers' Club, who are co-operating and promise the usual Southern brand of hospitality. The organization of the Mid-South section was authorized by the Board of Directors last Fall and the proposed constitution approved. Up to March 5th, 59 applications for membership had been received out of the 171 eligible, and it is expected that this number will be largely increased.

Ohio Notes

Spencer Brockway of 2026 Lawrence Avenue, Norwood, Ohio, is trying to locate work for his Gas Keystone excavator. He will either rent or subcontract, and he would like to figure on some ditching.

GEORGE HENRY BODETTE

George Henry Bodette, age 26 years, junior member of the firm of Edward Bodette & Sons, Inc., dredging, marine and road building contractors of Toledo, Ohio, passed away March 14, 1929, after an operation for appendicitis. His passing is not only mourned by the bereaved parents, brothers and sister, but by a host of friends among the younger engineers and contractors in this vicinity.

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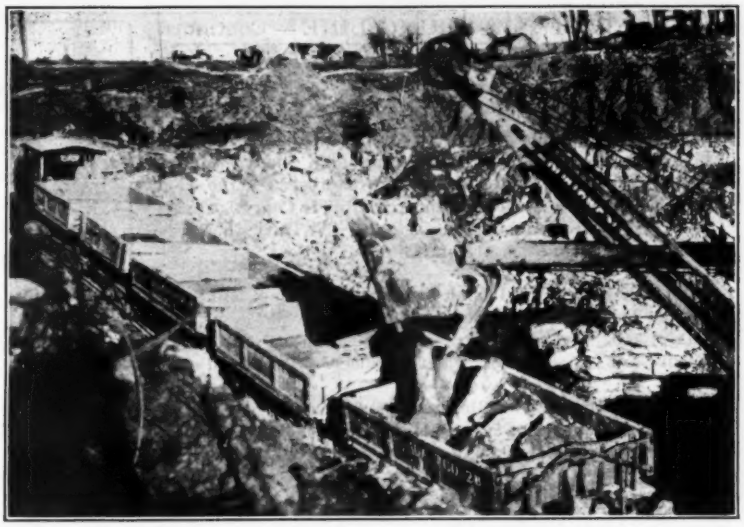
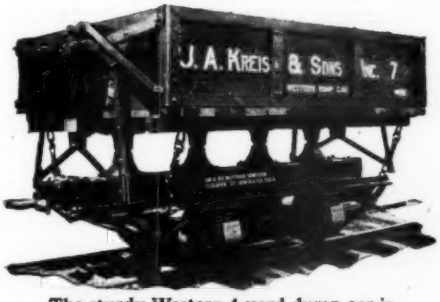


Loading rock into Western Dump Cars on Yale & Reagan's work for the Kansas City & Grandview Railroad near Kansas City, Mo. Western cars are built for this kind of work.

Dependable Western Dump Cars Will See You to the Finish



The sturdy Western 4-yard dump car is used throughout the world.

IT is a real dump car that is worth repairing after 20 years of service. We have sent out recently repairs for Western Dump Cars that have been in use more than twenty years and were worth repairing. That is what we mean by saying Western Dump Cars will see you to the finish.

It is the staying power—the ability to stand up under abusive service—that has gained a world-wide recognition of the true worth of Western cars. They will operate as well at the end of the season as they will at the end of the first month, and will continue to give low cost dependable service season after season. Write for prices and specifications.

Western Wheeled Scraper Company
Aurora, Illinois

WESTERN (Western)

DUMP CARS AND GRADING EQUIPMENT

In writing to Western Wheeled Scraper Co. please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Continued

St. Louis Items

BY A. J. KOENIG

Reid & Lowe Construction Co. of Birmingham, Alabama, was granted contract for the grading and construction of two miles of tracks for the Frisco Railroad between the Yale yards at Memphis, Tennessee, and the Illinois Central tracks. The Frisco is also double tracking from the Harvard Yards to Clarksdale, Arkansas, a distance of six miles.

The Chicago, Rock Island & Pacific Railroad will soon take bids for the construction of eighty-five miles of low-grade, standard-gauge railroad between Coburn and Birmingham, Missouri. W. H. Peterson, chief engineer, Chicago, Illinois.

Lanahan Brothers of Olmstead have a machine outfit at work on 2½ miles of state highway grading on Route 147. This work was subbed from J. J. McCaughey Co. of Chicago.

J. H. Hayes, 1719 Hancock Avenue, St. Louis, has wheeler and fresno outfit and ten teams that he would like to put to work near St. Louis.

D. F. Ross, Laclede, Illinois, has 250,000 cubic yards of side borrow work suitable for machine, wheeler or fresno outfit. This work is located near Highland, Illinois. If interested get in touch with R. B. Higgins, 7023 Dale Avenue, St. Louis, Missouri.

St. Louis Notes

BY H. H. BUCHANAN

The Phoenix Utility Company has established camp headquarters overlooking the Carpenter Hydro Electric Development Dam about six miles southwest of Hot Springs, Arkansas. Work has been progressing rapidly on the camp houses and the buildings are equipped with lights, water and sewer. W. P. McGeorge & Co., Pine Bluff, Arkansas, completed the grading for the six miles of standard-gauge railroad to the dam in record time. Equipment consisting of concrete mixers, dragline machine, screen and crushing plant is now being installed, and within a few weeks construction on a new dam, a $6,000,000 enterprise, will be well under way, in charge of Mr. L. G. Warren, superintendent Phoenix Utility Company.

A. A. Davis and Company, prominent Kansas City, Missouri, contractors, found they could use their Bucyrus-Erie 1030 crane for their work with a 1-yard clamshell bucket with the same efficiency as the ¾-yard bucket, obtaining a considerable increase in production. This company are using two Bucyrus-Erie 1030 cranes on their various jobs as well as three cranes of other manufacture.

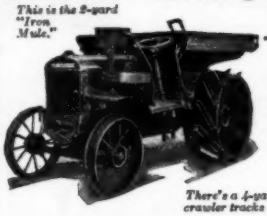
Black Gum Rollers

Standard dragline sound heart black gum rollers recommended by all contractors as superior to maple, at one-third the cost. Send us a trial order for a set, and be convinced. Used exclusively in all southern levee building on soft soil, which is a hard test on rollers. They have proven superior to all other materials.

Doherty-Walsh Roller Co.
Baton Rouge, Louisiana

Put An "IRON MULE" on the Job

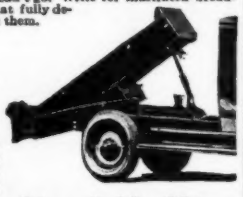
It Licks Trucks and Teams



This is the 2-yard "Iron Mule."

"IRON MULES" for years have made phenomenal profits for dirt-moving contractors. There are 2 sizes — the 4-yard with power hoist dump and crawler tracks, and the 2-yard with gravity dump. These sensational dirt haulers will get where trucks and teams can't go. Write for illustrated broadside that fully describes them.

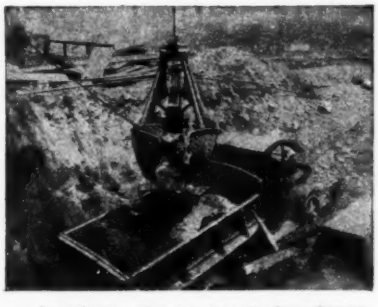
There's a 4-yard with crawler tracks also.



Dump Bodies Too

HUGHES-KEENAN Dump Bodies for all makes of light trucks are famous wherever dump bodies are used. Made in 1 and 1½ yard sizes, equipped with gravity dump, underbody hand hoist or power hoist. Write for descriptive folder.

HUGHES-KEENAN CO. Mansfield, Ohio



HAYCO

Builders of Buckets:
Clam Shell
Orange Peel
Drag Line
Electric Motor

Machinery:
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Coal Handling

STRENGTH
— for the hard jobs

PUT a Hayward Orange Peel Bucket to work when the going is really hard. Its digging power, as well as digging speed, is sure to be a revelation. Whether excavating in hard-packed soil or moving frozen material, Hayward Orange Peels have the strength to get the job done in a hurry. Bulletin 655 describes and illustrates the several Hayward Buckets of this type. Send for your copy.

THE HAYWARD COMPANY
56 Church St. New York, N. Y.

Hayward Buckets

It Always Digs

Digs Everything

Digs Gravel

Digs Macadam

Digs Dirt

It

Digs

On street grading, road widening or direct bank digging the Haiss Excavator will dig continuously at 1¾ to 2 cu. yds. a minute.

In actual service the Haiss Excavator has proven its ability in firmly packed roadbeds by tearing up old macadam, stones, wood and brick bats with apparent ease.

May we tell you more about this new type of machine for road-builders, the grader, or the man who operates sand and gravel pits?

GEORGE HAISS
Manufacturing Co., Inc.
144th St. and Park Avenue
NEW YORK, N. Y.

THE HAISS EXCAVATOR

In writing to Geo. Haiss Mfg. Co., Inc., please use post card bound in the center of this number.

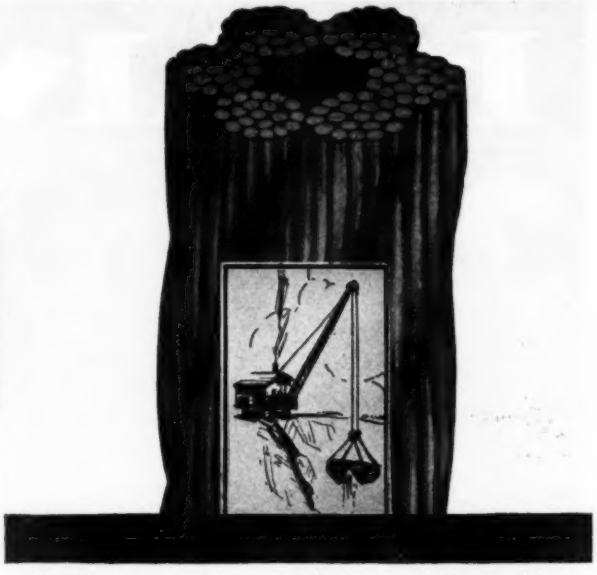
SHOTS FROM THE FIRING LINE — Continued

Oklahoma Notes

BY VICTOR L. PHILLIPS

J. E. Smith & Sons of Noble, Oklahoma, are using the above Bucyrus-Erie 1030 shovel to excavate a railroad underpass near Okarche, Oklahoma. They have this machine equipped for both dragline and shovel work, recently using it as a dragline on the channel change, and then changing it to the shovel which tore out the rock at the Okarche underpass. This sand rock did not shoot up as they expected, but, says Mr. Smith, "Old 1030 horsed the big rock out three times the size of the dipper." In the view above the 1030 is excavating the earth for the underpass. Enclosed gears running in oil proved to be of particular value on these operations as high wind continually blows the sand in and around the machinery.

At C. E. Van Orman's quarry, Hartschone, Oklahoma, the above Bucyrus-Erie 41-B Electric is loading rock for ballasting the Rock Island Railroad. The group of pictures also includes a general view of the quarry and a partial view of the plant. J. R. Utt is the operator, and it is through his courtesy that these pictures have been received. C. E. Van Orman is the owner of the quarry. Bert Van Orman, his brother, is general manager. Mr. Cashen is the quarry superintendent.



There Are Many Grades *of* Wire Rope

but it's the Right Grade for the Job that Counts!

Solve your Wire Rope problems by using—

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WIRE ROPE

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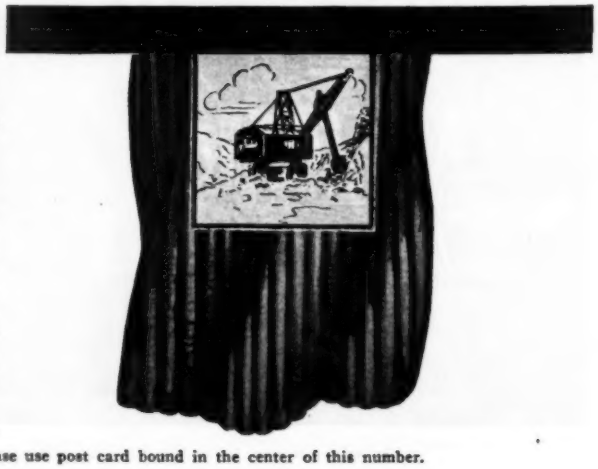


SHOTS FROM THE FIRING LINE — Continued

Texas Notes

BY C. F. BARTON

J. W. Zemper Construction Company of Galveston, Texas, are using the above Bucyrus-Erie Gas + Air shovel on their work twelve miles northwest of Amarillo, Texas. The machine is in rock digging, about as tough as is encountered anywhere. There is not a tree within 100 miles and the wind blows at about the same number of miles per hour, sweeping along a continual blast of cutting sand. In spite of these handicaps the Gas + Air is handling its work very satisfactorily.

Los Angeles Notes

BY GEORGE L. BANKS

THERE WERE GIANTS IN THOSE DAYS

I wish I could write out a brief description of each excavating project either being actively carried on or planned and prepared for by the engineers and contractors in the vicinity of Los Angeles.

In olden times considerable was said about the famous roads that led to Rome,, but Los Angeles is building more and better roads every year than any Roman ever had the luck to set foot on and saying practically nothing about it.

Some time in the next few days the first blast of ten tons of high-powered explosive will be set off at the site of the twenty-five-million-dollar San Gabriel Dam, and the steam shovels will begin to move the earth and rock in that gigantic project.

Down by Beverly Hills they are going to drive a tunnel beneath the Mulhollandhead Highway to connect that city and vicinity with the newly-planned studio city of San Fernando Valley.

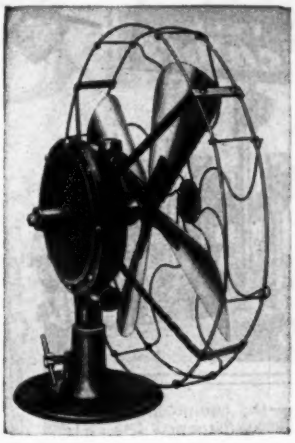
Then we are going to bring the water of the Colorado River across several hundred miles of hills and mountains of a region so rough and difficult of access that it looks like the land God forgot, if there ever was such a place.

THE SANDERSON CYCLONE DRILL CO., ORRVILLE, OHIO

DRILLS

and drill tools for every kind of Big Blast Hole Drilling

Catalog Mailed on Request



Why Let Hot Air Cut Your Output?

When the days get warmer and the heat waves hang sullenly on the top of the bank, when mosquitoes and flies sing lustily and bite visciously, it's hard for an operator to keep the output up where it belongs. The heat of the boiler and the heat of the sun sap most of his energy before the day's work is well begun. And not being equipped by Nature with a tail he must use the hands he needs at the levers to slap at insect pests and keep the sweat out of his eyes.

But now-a-days these handicaps are no longer necessary. You can put your output back on a comfortable weather schedule by using the little steam fan shown here to create a breeze of comfort for the steam shovel operator. An eighteen-inch self-oiling fan—it gives a good healthy current of air—requires very little steam and needs practically no attention while in service.

BUCYRUS-ERIE COMPANY can supply for immediate shipment packings of all kinds, brake lining of all types, wire rope, electric light plants, dipper trips and electric power cables.

The cost is low and it will earn you many a dollar by keeping your output where you would like to have it in the dog days of summer. Return the attached coupon and we'll tell you about it.

BUCYRUS-ERIE COMPANY
Specialty Department
South Milwaukee, Wisconsin

BUCYRUS ERIE

I would like to know more about the Steam fan.

Name _____

Company _____

Address _____

Occupation _____

A HILLS-McCANNA FORCE FEED Lubricators

Drop of Oil *might save a* Thousand Dollars

The men are on the job—the equipment is standing idle—everything has stopped because of a burned-out bearing, and nobody can tell when a new one will come from the factory. This is not idle talk, it is an everyday occurrence where hand oiling is depended upon. Hills-McCanna Force Feed Lubricators mechanicalize all oiling and force it to all working parts—no forgetting—no breakdowns.

Write for bulletin describing the many types from 1 to 60 feeds.

HILLS-McCANNA CO.
2349-53 NELSON ST. Chicago

THE MOST COMPLETE SERIES OF ALLOYS FOR INDUSTRIAL USE
FORCE-FEED LUBRICATORS · PROPORTIONING PUMPS · TANK CAR VALVES

Where work must go on—

SAFETY and efficiency demand good light. Carbic Flood Lights make night work productive. Steady and powerful rays of Carbic light insure the job proceeding with day-like rapidity and safety

The Carbic Flood Light is simple. There are only three parts. It has unusual safety features. Any inexperienced laborer can charge it in a few minutes. A charge lasts twelve hours. The Carbic Flood Light is low in first cost and inexpensive to operate.

Speed up your job by working at night with

CARBIC LIGHT

OXWELD ACETYLENE COMPANY
Unit of Union Carbide and Carbon Corporation

NEW YORK CITY: 30 East 42nd Street — CHICAGO: Peoples Gas Building
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CARBIC

Carbic is distributed by the Union Carbide Sales Company through its national chain of warehouses and is sold by jobbers everywhere.

SHOTS FROM THE FIRING LINE — Continued

It will take tons and tons of dynamite and a veritable army of steam shovels to cut the way through these mountains and bring the water that will make this part of the country the garden spot of the world.

By the time we get that done, perhaps before, we will be ready to dig the new Nicaragua Canal.

And when we get that done I expect some excavating engineer to plan out a scheme to level down the entire Cascade Range of mountains and fill up Death's Valley to the level of the surrounding country.

And the papers and magazines say more about a game of baseball or football, or some second-rate prize fight, than any of these really big achievements of men.

But some time in the far future other generations will appreciatively measure these projects that excavating engineers and contractors are now toiling at in order that future inhabitants of the land may be benefitted. In those days to come, is it too much to hope that they will appreciate the great projects that we are giving our lives to accomplish and say with reverence: "There were giants in those days"?

California Notes

BY G. WITTE

Through the courtesy of E. E. Hall, Chief Engineer of the McCloud River Company, McCloud, California, we have secured the above photographs showing this company's D-2 Diesel building railroad grades through cuts of solid lava. The machine operates two shifts, a total of 20 hours, a day and the fuel costs run about $3.00 for the entire 20 hours. Mr. Hall also mentioned that at the time the picture was taken this machine had worked 20 hours per day for 90 days without a single hour's delay.

Pacific Coast Notes

BY J. H. SACKETT

Contract has been awarded by the Western Pacific Company **to W. A. Bechtel Company,** San Francisco, for the construction of a passing track at Pulga and a passing track at Belden, Plumas County, California. Work involves 100,000 cubic yards of excavation.

For the San Gabriel Dam at Azusa near Los Angeles, California, two 2-cubic-yard 50-B Bucyrus-Erie electric shovels and a yard and a quarter Bucyrus-Erie Gas + Air shovel started excavation of 1,000,000 cubic yards on March 12th. Plymouth fifty-ton gasoline locomotives, hauling Western thirty-yard cars, move the material to the dump. Fisher, Ross, MacDonald and Kahn, Inc., are the contractors. A. T. Cassell is chief engineer and R. H. Slocum is superintendent.

Harry Hauser of Oakland has his new Bucyrus-Erie Gas + Air on a road job near Yosemite National Park. Alva

ROEBLING

"Blue Center" Steel Wire Rope

Roebling Service

does not end with the sale of wire rope, but includes co-operation with the rope user to obtain the best results in service.

Roebling "Blue Center" Steel Wire Rope, because of its superior quality, has longer life in service and greater working capacity than ropes of inferior material.

It is particularly adapted for use on excavating machinery where it is subjected to heavy strains, sudden jerks and pulls. "Blue Center" with its high fatigue qualities has demonstrated its superiority and particular fitness for this exacting duty.

Information regarding the proper selection of wire rope will be furnished on request.

John A. Roebling's Sons Company
Trenton, New Jersey
Makers of Wire Rope and Wire

In writing to John A. Roebling's Sons Co. please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Continued

Belding, the Bucyrus-Erie service engineer, made a trip to see this rig in operation recently, and on account of a heavy snowfall had to be towed out from the job with a tractor.

C. R. Adams of Oakland is moving his three P. & H. shovels on to an eleven-mile grading job in Nevada County, California.

James B. Girard, Phoenix, Arizona, has applied for permits on two power developments. The first is the construction of two dams and power houses on the Salt River in Gila County affecting lands within the Fort Apache and San Carlos Indian Reservation. The upper dam just below Carrizo Creek will be 325 feet high and will develop approximately 14,000 h.p. The second dam three miles below the Carrizo site will be 140 feet high and will develop 9000 h.p. The power will be marketed among copper mines in the vicinity. The second permit covers a dam in Salt River in Gila County affecting the Fort Apache Indian Reservation and the Tonto and Crook National Forests. It will be 200 feet high and will be constructed just above the mouth of Soldier Creek. A tunnel 49,000 feet long will divert the water from above the dam to a powerhouse ten miles downstream. Power capacity 8000 h.p. will be marketed among copper mines in the vicinity.

The Municipal Construction Company of San Francisco recently purchased a Marion 450 yard and a quarter gas electric shovel. Ed. Haney is running the shovel for them.

Orange County Water Conservation District has made plans for a $16,000,000 flood control and water conservation program. This includes six dams and a reservoir. The reservoir of 26,000 acre feet capacity will be placed in Santiago Canyon and will cost $1,730,000. The arch dam at lower Santa Ana Canyon with a capacity of 18,000 acre feet will be 150 feet high and cost $11,800,000. $1,500,000 will be spent on an arch dam 100 feet high, 2500 acre feet capacity to conserve Puente Hills Runoff and two dams in Brea Canyon. An earth fill dam in Trabuco Canyon and a semi-rock fill dam on San Juan Creek, 8000 acre feet capacity, will cost $708,000. P. Bailey, F. C. Herman, C. H. Paul and A. J. Wiley compose the board.

Los Angeles and Vicinity

BY F. L. BEST

Gabler Construction Company, Los Angeles, submitted low bid to California Highway Engineer for 2.2 miles of highway construction in Colaveras County, California.

Griffith Company, Los Angeles, submitted low bid to Los Angeles County Supervisors for excavating and paving on 9th Street at $214,434.96.

J. L. McClain, Los Angeles, was low bidder for street improvement on Rosecrans Avenue, Los Angeles. His bid was $225,478.78.

Will F. Peck Company, Los Angeles, was awarded contract by Los Angeles Board of Public Works at $105,612.27 for improving Topanga Avenue, Los Angeles.

The War Department has approved the construction of the proposed vehicular tube between San Diego and Coronado under San Diego Bay. California Bridge and Tunnel Company have a tideland lease for the construction of the tube. David E. Root of Coronado is general superintendent of construction.

A
SMOOTH
FIRM GRIP
No jerking or grabbing with *Asbesgraphite!* On shovels, dredges, draglines, cranes, hoists, pavers, trucks, etc., this Gatke product has proved its ability to give longer life, trouble-free service, and ability to speed up operations because of better and smoother control. Asbesgraphite is a self-lubricating, non-scoring asbestos friction material unaffected by heat, cold or moisture. It ends friction troubles.
You are missing a bet if your machines are not Asbesgraphite equipped. The cost of a trial installation is negligible. It's not an experiment, for we guarantee satisfactory service — *order today.*
It is not Asbesgraphite unless it is marked "GATKE"
ALL SIZES CARRIED IN STOCK
THOMAS L. GATKE
Manufacturer
Chicago Office: Railway Exchange Building
Factory: Winona Lake, Indiana
ASBESGRAPHITE
ASBESTOS COMPOSITION
In writing to Thomas L. Gatke please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Continued

Nevada Highway Department, Carson City, Nevada, are asking for bids for highway construction involving 53.52 miles in Elko County between south Elko County line and White Horse Pass. S. C. Durkee is State Engineer.

Lange Transportation Company have contract for construction of Skyline Boulevard in Kettleman Hills, Fresno County and are using a Bucyrus-Erie 1030 and trucks and teams on job.

Nat. H. Neff, Santa Ana, County Road Commissioner of Orange County, has announced plans for highway improvements amounting to $880,000.

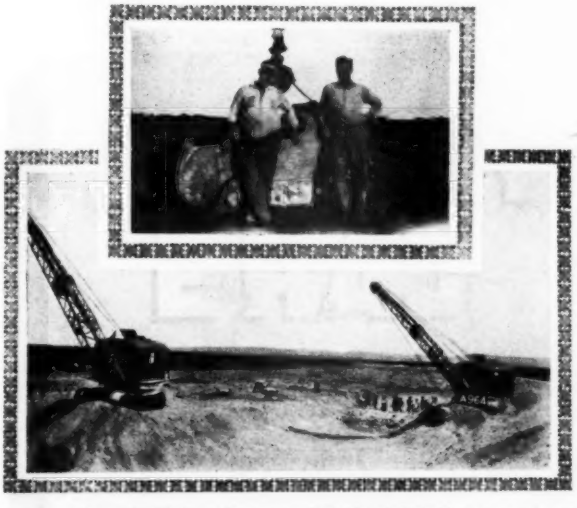
A. C. Fulmor, County Surveyor of Riverside, California, has ordered surveys for a road from Keen Camp to the desert side of the San Jacinto Mountains, about 30 miles in length.

Geo. H. Oswald, Los Angeles, submitted low bid to the Board of Public Works at $150,625.31 for improving Angelus Mesa Drive in Los Angeles City.

Bert Calbert, Los Angeles, was awarded contract by the directors of Joint Highway District No. 6 at $124,506.90 for the construction of the first 17 miles of joint highway planned by Ventura, Santa Barbara and Kern Counties between Maricopa and Carpenteria. Excavating involves 230,000 cubic yards.

Mexico Notes

BY E. S. KIEFER



Operators A. H. Buschman and O. H. Prichett shown above have been operating Bucyrus-Erie 50-B Diesel draglines in Mexico for J. G. White Corporation S. en C. for some time. Both these operators were formerly with George Pontarelli on a large sewer job in Evansville, Indiana. When they wrote us on March 11th, there was a lot of excitement around their camp as it was reported that the Rebels were getting near them. Trains and telephone connection had been cut off from them for four days, but it was expected that communication would be resumed shortly.

They Use It on Bridges

"Is it true that statistics prove women live longer than men?"

"Well, you know paint is a great preservative."

Dependability

"Digging 20 feet deep and 42 inches wide in hard blue clay at the rate of 25 to 30 feet per hour"

This testimonial tells a real story and it is just one of the hundreds of stories that comes to us each year. The Hattendorf Construction Company, Cleveland Contractors, have owned and operated this Buckeye Trench Excavator for over three years and report a 100% service. That is why we spell DEPENDABILITY in capital letters.

The same capacity with which the Buckeye has established world's records under "ideal" conditions, makes good in any practical digging. For more than thirty years the name Buckeye has symbolized Dependability and utility.

Some of the Buckeye outstanding features are: the slow speed, heavy duty gasoline motor; power shifted conveyor (dumping on either side and clearing side obstructions); positive bucket cleaning in any soil; digging chains of heavy manganese steel; double drive to digging chains (through differential gearing); all-steel gears cut from solid blanks and heat-treated; power steering; and Alligator (crawler) traction, equipped with brakes for controlling machine when operating on steep grades.

Write for full specifications of construction and performance.

The Buckeye Traction Ditcher Co.
FINDLAY, OHIO

There's a Buckeye Sales and Service Office Near You

for over thirty years **Buckeye**

In writing to The Buckeye Traction Ditcher Co. please use post card bound in the center of this number.

TRADE NOTES

Barber-Greene Company, Aurora, Illinois, manufacturers of ditchers, loaders, conveyors, coal equipment, etc., have recently opened a new office in Cedar Rapids, Iowa, at 527-528 Merchants National Bank Building. Jack Marson, who has been with the Barber-Greene Company a number of years, is in charge. Opened at the same time is a branch office under Mr. Marson at 1106 Nicholas Street, Omaha, Nebraska, with W. E. Toole in charge.

Control of the Fuller & Johnson Mfg. Co. of Madison, Wisconsin, has been purchased by the Second Ward Securities Co., and the Quarles Co. of Milwaukee, according to a recent announcement. The Company has been reorganized, additional capital has been supplied, and ownership is in a group affiliated with the investment houses mentioned and with the management of the company. It has been announced that no merger of the company is involved. Operations will be carried on entirely independent of the Waukesha Motor Co., as the two companies manufacture non-competing lines. The Fuller & Johnson Co. has specialized of late on a complete line of gasoline motors for the agricultural as well as the industrial field. It also manufactures a line of farm lighting plants.

Purchase of the entire common capital stock of the Galion Iron Works & Manufacturing Co., of Galion, Ohio, by the Jeffrey Manufacturing Co., Columbus, Ohio, was recently announced. This is a step in the Jeffrey Manufacturing Company's plan for additional development into basic industries.

The Galion Iron Works & Manufacturing Co. is one of the old-established manufacturers of road machinery, including a full range of gasoline and steam road rollers, leaning wheel road graders, tractor power graders, road drags, road plows, cast-iron and special non-corrosive galvanized culverts and miscellaneous equipment for road work.

In addition to road machinery the Galion Plant has developed elevating and conveying equipment for handling coal, stone, gravel and other materials into central storage plants. The units of material-handling equipment which can be more economically produced at the Jeffrey plant at Columbus will add to the Jeffrey output and, at the same time, give additional capacity at Galion for specialized road machinery.

The new officers of the company are: D. C. Boyd, Chairman of the Board; Robert W. Gillispie, President and General Manager; J. S. Boyd, Vice-President; F. W. Faber, Secretary and Treasurer. Mr. Gillispie is also Vice-President and General Manager of the Jeffrey Manufacturing Company.

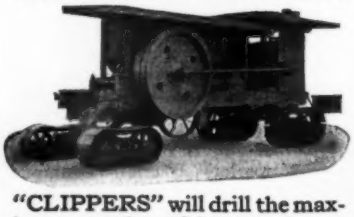
Harold C. Osman, Secretary of The Nugent Steel Castings Company, Chicago, and heretofore in charge of sales for that company, has been appointed works manager.

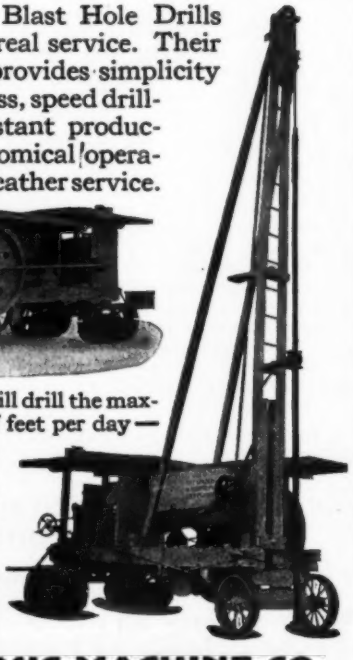
Thirty-two large independent makers and distributors of tractors, farm implements and industrial equipment in North America recently announced final details of their organizing as the **United Tractor and Equipment Corporation.** Combined assets of the companies in the co-operative manufacturing and marketing movement are above $125,000,000.

Through several hundred selected dealers handling the new United Tractor here and in Canada, the members of the new corporation, fifteen manufacturers and seventeen distributors, will market a full line of farm and industrial tractor equipment designed to be operated with the new tractor. The

ALWAYS DEPENDABLE

"CLIPPER" Blast Hole Drills are built for real service. Their construction provides simplicity with ruggedness, speed drilling with constant production, and economical operation with all weather service.





"CLIPPERS" will drill the maximum number of feet per day—*per month* and PER YEAR in your own rock strata whether it be soft or hard.

Let us tell you how "CLIPPER" Blast Hole Drills will cut your drilling costs.

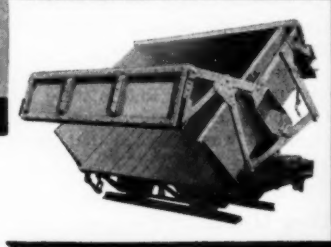
THE LOOMIS MACHINE CO.
(Established 1842) K Street, Tiffin, Ohio

KOPPEL

KOPPEL CARS

—Are built to a high Standard of Quality—designed by competent engineers—they not only function perfectly—but they last, and give very satisfactory service.

Koppel Industrial Car & Equipment Co.
KOPPEL, PENNA.
Sales Offices
New York Pittsburgh Chicago San Francisco



TRADE NOTES — Continued

tractor is in full production under contract by the Allis-Chalmers Manufacturing Company of Milwaukee, a member of the corporation. Tractor production for dealers and users follows a year's shop and field tests.

The first public showing of the tractor was at the Southwest Tractor and Road Show in Wichita, Kansas, where dealers, farmers and industrial users alike were impressed by its power and flexibility, the completeness of accessories and the observance of modern automotive engineering tendencies in design. It is claimed to be the lowest-priced tractor ever offered per pound of drawbar pull or per horse power. This in spite of the fact that all accessories are included in the one price, $895.

The United Corporation was made possible, it is declared, through Henry Ford's being compelled to quit the American tractor field when production problems brought the dismantling of his tractor plant to gain needed space for making new car models.

Enrolled in the corporation membership are these manufacturers: Allis-Chalmers Manufacturing Company, tractors, the Wehr Co., road building machinery and rubber-tired industrial wheels, and the Trackson Co., logging hitches, full crawler attachments, cranes, bulldozers and backfillers, all of Milwaukee, Wisconsin; Brookville Locomotive Co., gasoline locomotives, Brookville, Pennsylvania; Dorsey Brothers, stump pullers and land clearing equipment, Elba, Alabama; Hughes-Keenan Co., "Iron Mule" self-contained dump tractors, and the Roderick Lean Manufacturing Company, field type disc harrows, Mansfield, Ohio; C. H. Turner Manufacturing Co., saw mill equipment and cordwood saws, Statesville, North Carolina; the Perry Co., scrapers, Perry, Ohio; Muskogee Iron Works, double and single-drum hoists and oil field equipment, Muskogee, Oklahoma; Brenneis Manufacturing Co., orchard harrows, Los Angeles, California; Ferguson Manufacturing Co., wheelless plows, Evansville, Indiana, Universal Power Shovel Company, power shovels, Detroit, Michigan; Athens Plow Company, trailing and side disc plows, Athens, Tennessee; Moline Implement Company, general line of agricultural implements, Moline, Illinois.

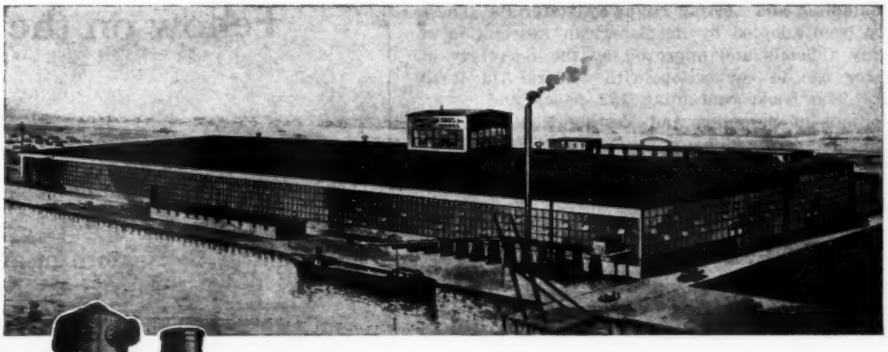
Distributors in the corporation are the Howard Cooper Corporation, Portland, Oregon; O. R. Peterson Co., Inc., San Francisco; B. Hayman Co., Inc., Los Angeles; F. D. Equipment Co., Dallas, Texas; Thomson Automobile & Machinery Co., New Orleans, Louisiana; Dealers' Equipment and Implement Co., Memphis, Tennessee; Truck Tractor Equipment Co., Columbus, Ohio; Motor Power Equipment Co., St. Paul, Minnesota; W. B. May, Inc., Buffalo, New York; Cunningham-Ortmeyer Co., Milwaukee, Wisconsin; C. V. Ruble, Kansas City, Missouri; C. H. Turner Mfg. Co., Statesville, North Carolina; John M. Brant, Bushnell, Illinois; Dealers' Equipment Co., Oklahoma City; C. W. Bull Equipment Co., Houston, Texas; British Columbia Tractor Equipment, Ltd., Vancouver, British Columbia; George A. Clark, Toronto, Ontario.

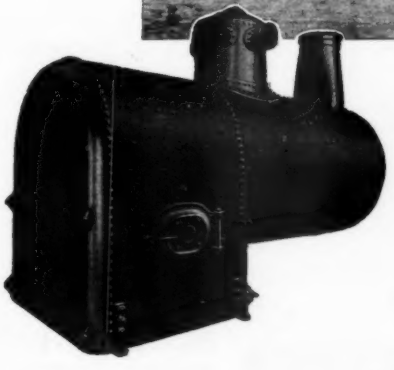
The officers of the Corporation are: Milton W. Anderson, president and general manager; W. B. May, of W. B. May, Inc., Buffalo, New York, vice-president; E. R. Wehr, the Wehr Company, Milwaukee, secretary-treasurer; Walter Stiemke, the Trackson Company, Milwaukee, assistant secretary-treasurer. Offices are at 612 North Michigan Avenue, Chicago, Illinois.

The T. L. Smith Company of Milwaukee announces the purchase of the Kwik-Mix Concrete Mixer Company, Port Washington, Wisconsin. The entire plant of the company at Port Washington will continue to be operated as heretofore with the exception of the business office, which will be combined with the T. L. Smith Company Milwaukee office.

With the acquisition of the various Kwik-Mix models, the T. L. Smith Company now has the most complete line of mixers in the world, ranging from the 2½-S size to the 112-S tilter, the world's largest mixer. The models include a machine for every conceivable mixing job, and have a wide price range that will meet the purse of any contractor.

The T. L. Smith Company is one of the independent divisions of the National Equipment Corporation.





65 Years Building Boilers for the World!

For sixty-five years Johnston Brothers, Incorporated, have been building boilers for the outstanding engineering projects of the world. Engineers have come to know that if they demand a Johnston Boiler they can be sure of absolute satisfaction.

If you have a boiler problem it will pay you to secure the Johnston proposition.

JOHNSTON BROS., Inc., Ferrysburg, Mich.

In writing to Johnston Bros., Inc., please use post card bound in the center of this number

BOOK REVIEWS

We shall be glad to review such books and catalogs as are sent us

The Portland Cement Association, 33 West Grand Avenue, Chicago Illinois, have just published a booklet entitled "Design and Control of Concrete Mixtures." Containing seventy-six pages, this publication deals with the proportioning of mixtures to secure the greatest possible strength, durability and economy for concrete structures.

It recommends the application of the simple, water-cement ratio principle, and includes the general securing of essentials of proper strength and durability. Particular emphasis is placed on the selection of materials, the mixing and placing of concrete and protection during curing.

Of particular interest to many contractors is our instructions for obtaining concrete with strength and water-tight with standard portland cement.

Those interested should write to the Portland Cement Association for a copy.

The Waukesha Motor Company of Waukesha, Wisconsin, have just issued a new catalog describing and illustrating their various engines. The book is entitled "What's New with Waukesha?" In order to enlarge their production and service facilities, the Waukesha Motor Company have built a new plant, increasing their floor area 100 per cent. The new building and its uses are illustrated and described in the new booklet. Copies of the new catalog may be had by writing to the Waukesha Motor Company of Waukesha, Wisconsin, mentioning The Excavating Engineer.

The United States Department of Agriculture in Department Bulletin No. 1216, prepared by the Bureau of Public Roads and revised in September 1928, give Tentative Standard Methods of Sampling and Testing Highway Materials. These methods have been adopted by the American Association of State Highway Officials and approved by the Secretary of Agriculture for use in connection with Federal-Aid Road Construction. The book, containing 132 pages and cover, describes Methods of Sampling and Testing Nonbituminous Highway Materials; Drain Tile and Culvert Pipe; Bituminous Highway Materials; and Metallic Materials. Copies may be had by writing to the Superintendent of Documents, United States Government Printing Office, Washington, D. C., and remitting thirty cents per copy.

A Standard City Planning Enabling Act is fully described in a book issued by the Department of Commerce, Herbert Hoover, Secretary, and prepared by the Advisory Committee on City Planning and Zoning. Copies of this valuable treatise on City Planning are available at fifteen cents each on request to the Superintendent of Documents, United States Government Printing Office, Washington, D. C.

The Gillette Publishing Company of 221 East 20th Street, Chicago, Illinois, has just issued a 246-page book written by C. B. McCullough and entitled "Economics of Highway Bridge Types." This is a book much needed in the field of highway engineering, and is a concise discussion (with the necessary cost and quantity data appended) of the fundamentals of economic analysis and type selection for ordinary highway bridge structures. It has been compiled for utility not only to the practicing highway engineer but for the undergraduate student in highway and civil engineering as well. The tables of quantities and costs will prove of great benefit to the engineers in the field as well as to contractors whose work includes construction of highway bridges. The book is profusely illustrated with excellent views showing various bridge types together with diagrams and charts. Copies may be secured at $5.00 each by writing to the publisher.

George Haiss Manufacturing Company of 144th Street, Park Avenue and Canal Place, New York, have recently issued a pamphlet entitled "A New Idea" describing and illustrating the operation of the new Haiss excavator.

Flapper to barber, "It's all right in front but I want it shingled like a boy's behind." — **Trindl Tips.**

Who Wouldn't?

The flapper was showing her maiden aunt about the city and stopped for lunch in a Bohemian cafe. As soon as they were seated the flapper pulled out a package of cigarettes, lit one and offered the pack to aunty. Aunty was horrified.

"Why, Mabel," she gasped, "I'd sooner kiss a strange man."

"Heck, who wouldn't," said Mabel, "but where'll we find one?"

Why Bring That Up

There was a convention in town. Not a room was available at the hotel, yet he had to sleep that night. He had worked hard all day and had not taken a single order.

"Anything will do," he said to the clerk.

"I can let you have a cot in the ball room," said the clerk, "but I already have a lady in there. I'll put you in the opposite corner, and if you don't make any noise she'll be none the wiser."

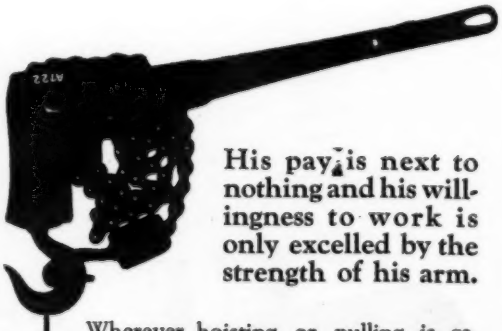
"Fine," said he and into the ball room he went.

Five minutes later he came running out to the clerk.

"Say," he cried, "that woman in there is dead."

"I know it," said the clerk, "but how did you find it out?"

He's the Handiest Little Fellow on the Job



His pay is next to nothing and his willingness to work is only excelled by the strength of his arm.

Wherever hoisting or pulling is required, the Coffing Hoist will be found very convenient. It only weighs twenty-four pounds; the rated capacity is three thousand pounds, and its standard lift is five feet. Let us tell you more about this little fellow with the big pull.

A post card directed to us will bring the story.

BUCYRUS ERIE

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SPECIALTY DEPARTMENT,
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